is included in the monthly returns. With these provisions effectively administered throughout the state, there should be no doubt as to the approximate completeness of results from the first day of the operation of the law, and Iowa will at last posssess, after nearly a quarter of a century of futile efforts, statistics of mortality that will be entitled to full faith and credit as authentic data, without discount for imperfections in returns.

THE MOVEMENT IN PENNSYLVANIA.

It is very gratifying that an active, aggressive campaign has been begun, through the Associated Health Authorities of Pennsylvania, to bring about the adoption of an efficient system of registration and to add that state to the registration column. At the recent meeting at Gettysburg, held on May 26-27, 1904, the following resolutions were unanimously adopted:

> Whereas, The accurate registration of vital statistics is an indispensable requisite of an efficient modern public health service; and
>
> Whereas, The congress of the United States, by joint resolution, has called on the authorities of the various states to co-operate in establishing such registration; therefore be it
>
> *Resolved*, That we, the Associated Health Authorities and Sanitarians of Pennsylvania, assembled in annual meeting at Gettysburg, May 26-27, 1904, do hereby most earnestly recommend to the next legislature of Pennsylvania that a law be enacted which shall provide for the thorough and complete registration of vital statistics throughout the entire state, and especially that all deaths, with the causes of deaths, be recorded by means of standard certificates, as recommended by the U. S. Census Bureau and the American Public Health Association, and that burial or removal permits be issued prior to any disposition of the body.
>
> *Resolved*, That a special committee of three members of this association be appointed to co-operate with the State Board of Health and Vital Statistics of Pennsylvania, committees from the Pennsylvania State Medical Society, of the American Medical Association, and with the U. S. Census Bureau, in drafting and supporting a satisfactory bill for this purpose; and
>
> *Resolved*, That the achievement of the registration of all deaths, with their causes, immediately after their occurrence, and the prompt return of certificates of death from local registrars directly to the central bureau of vital statistics, which shall constitute a part of the organization of the State Board of Health, thereby giving the sanitary authorities of the state timely information of the exact prevalence and distribution of disease, is the most important of all sanitary measures and should be unremittingly urged until successfully carried out in this state.

The committee was immediately appointed, consisting of Dr. Wilmer R. Batt, chairman; Dr. Benjamin Lee and Hon. Milton A. Embick. Dr. Batt, who, as state quarantine officer at large in sole charge of the operations of the Pennsylvania State Board of Health for the suppression of the recent terrible epidemic of typhoid fever at Butler, has gained a national reputation for his prompt and effective work, will use the same unremitting energy to obtain what the sanitarians of Pennsylvania have unequivocally recognized as the most important of all sanitary measures, namely, the providing of a firm and lasting foundation for all the future sanitary work of the state by means of the collection of trustworthy vital statistics.

PROSPECTS IN OTHER STATES.

When we consider the large blank areas on the map of the United States that are totally unrepresented by accurate mortality statistics, the outlook seems a little discouraging as to the early approach of the time when the United States shall have, like other civilized countries, a system of registration of vital data in which the entire nation is represented. Probably sufficient efforts have been wasted in the past to nearly or quite achieve this result, were it possible to employ all the misapplied energy, and the fact that there are now movements in many states, besides those in Colorado, Illinois, Maryland and Iowa already referred to, gives fair prospect for hoping that the census of 1910 will include a larger list of newly-added registration states than has ever been obtained during an intercensal period.

In Ohio a bill was introduced at the recent session of the legislature and supported by the sanitary authorities of the state. For various reasons it did not succeed in passing, but the necessity of such legislation as a *sine qua non* of efficient public health work was fully recognized, and it is only a matter of a short time when Ohio, with Pennsylvania, must inevitably adopt modern methods and bridge over the gap now existing between the registration states of the East and West.

California will make an effort to secure an improved and fully efficient law next year. The State Board of Health is considering legislation for this purpose, and its efforts will undoubtedly be strongly supported by the medical profession and by the enlightened public of the state. The interest of the California State Medical Society in the movement may be shown by the following extract from the presidential address of Dr. H. Bert Ellis at the annual meeting of this year:

> It should be almost unnecessary to recount to a society of physicians the numerous reasons why an accurate registration of vital statistics is absolutely essential to the proper sanitary administration of a state. Vital statistics, and especially correct mortality statistics, are fundamental to a progressive public health administration. It is as unsatisfactory to attempt to conduct a public health service, either of a city, a state or a nation, without reliable statistics of mortality, based on the immediate registration of all deaths as they occur, as it would be to manage a large business enterprise without some adequate system of bookkeeping. To know the influence of modern methods of sanitation and prevention of disease on the public health, the statistics of deaths must be accurately known. The progressive health officer must be on the alert to watch the movement of mortality from important diseases, and he can only judge of his success at restricting these diseases by studying variations in mortality and in sickness.
>
> Nearly every state in the country has attempted to secure a satisfactory system of recording vital statistics, yet up to the present time less than a dozen have adequate laws for the registration of deaths alone, and I believe that there is not a single state, and probably not even a single city in the United States, that has to-day a complete registration of births. This should receive the attention and the active support of every physician in the state, and especially the consideration of our members and of our county societies. I therefore recommend to this society that a committee of three be appointed on vital statistics, to co-operate with the public health committee of the American Medical Association.

At a recent meeting of the Louisiana State Medical Society, held in New Orleans May 9-10, 1904, the committee on vital statistics, through its chairman, Dr. E. J. Granor, made a report which was adopted by the society in favor of co-operation with the state and national authorities for the improvement of vital statistics in that state. A bill was introduced in the last session of the Florida legislature by Dr. Porter, state health officer, which was closely in accord with the forms of law recommended for adoption by the Census Bureau: unfortunately it did not pass, but renewed efforts will be made to bring registration in Florida up to the proper standard. A bill was also introduced by the State Board of Health at the last session of the Mississippi legislature, but, for various reasons, it did not become a law. Texas has recently changed the title of its quarantine department to the "Department of Public Health and Vital Statistics," a law having been enacted requiring the return of births and deaths through the county clerks to the State Board of Health—a plan similar to that of the old Iowa law, which was not a success in practice. The work of the recently created Georgia State Board of Health will depend on the accurate registration of vital statistics. This was fully recognized by the promoters of the law, as seen in the resolutions passed by the Medical Association of Georgia:

> *Resolved,* That in the interest of the public health and a better study of the prevention of disease, the Medical Association of Georgia, through its legislative committee, urges the Georgia legislature to enact laws for the registration of vital statistics, as outlined in the joint resolution approved by the Senate and House of Representatives of the United States, Feb. 11, 1903.
>
> *Resolved further,* That the Medical Association of Georgia co-operate with the American Public Health Association and the United States Census Office in efforts to extend the benefits of registration of vital statistics.

In many other states the problem of securing effective registration of vital statistics is receiving much attention from sanitary authorities. There are two classes of states which would seem to present unusual difficulties in the way of execution of proper laws, namely: 1, States having very sparsely settled populations; 2, states having a considerable proportion of colored population. Other things being equal, the facility of registration and the ease of enforcement of registration laws depend somewhat on the density of population. Associated factors are readiness of communication by rail and other roads, wealth, intelligence and absence of a large illiterate element. From a diagram showing the states ranged in order of density of population, with some distinction of their various constituent elements, we can gain an idea of the probable limitations of the extension of accurate registration methods, as well as form some judgment as to the states where such efforts ought to meet with early success. Pennsylvania and Ohio, nearly at the head of the list in thickness of settlement, ought at once, from every conceivable point of view, to qualify themselves as registration states. If Michigan and Maine, low on the scale of density, can execute effectively laws for the immediate registration of deaths, including the requirement of burial permits, then all of the states above except such as have many negroes included, ought to be able to do the same. Colorado, if the registration of that state is in fact effective, carries the limit of possibility still further. And then the states of the South, where a large colored population, largely illiterate, has rendered accurate registration difficult or impossible—will it be necessary to devise new measures for securing their vital statistics or will the general methods heretofore recommended be found practicable? The conditions in each state require most careful consideration, with the help of the local authorities, and while earnest efforts should be made to secure effective results wherever reasonably possible to do so, it should be remembered that methods adapted to densely populated, wealthy and educated communities can not always be applied without radical changes, to sparsely settled, poor and ignorant ones.

So far I have chiefly given attention to the questions affecting the extension of the registration area, this being a matter of fundamental importance, and also the particular line of effort to which the American Medical Association is lending its aid. At the last session of the Association at New Orleans a paper was presented to this section by Mr. W. A. King, Chief Statistician of the United States Census Bureau, on "Co-operative Work in Registration Methods and Vital Statistics," which fully stated the various ways in which the Census Bureau is endeavoring to improve the registration of vital statistics in this country, and resolutions were adopted by this section and transmitted to the House of Delegates calling for the appointment of a special committee to co-operate with the committees of the American Public Health Association, Conference of State and Provincial Boards of Health of North America, and with the United State Census Bureau and other government authorities interested in this work. The special committee was not appointed as the section desired, but the resolutions themselves were indorsed and the matter referred for action to the already existing Committee on Public Health. A circular was printed by the committee entitled "Co-operative Agencies for the Extension of the Registration Area and Improvement of Vital Statistics in the United States," which was addressed to the officers and members of state and county medical societies asking their interest and active co-operation in the adoption of better laws for the registration of births and deaths. The recent reorganization of the medical profession should be of special value in promoting the effective expression of medical opinion on this subject.

In the division of labor among the various national organizations, the question of uniform and comparable tables for the presentation of vital statistics in official reports and bulletins, and also the adoption of uniform methods in estimating populations and computation of rates, fell to the Conference of State and Provincial Boards of Health of North America.

The very important subject of the relation of morbidity to mortality statistics has been undertaken by the official Conference of State and Territorial Boards of Health, whose second annual meeting was held at Washington, June 3, 1904, on the call of Surgeon-General Wyman of the United States Public Health and Marine-Hospital Service.

An important practical condition for obtaining unifrom statistics of deaths is the use of a standard form of certificate containing all the information desired by the government. Over a dozen states have already adopted this blank, prepared by the United States Census Bureau in co-operation with the American Public Health Association, and many cities in non-registration states use the same form. The employment of the international classification of causes of deaths, together with the preliminary work for its revision and the adoption of a uniform method of rating several causes of death when jointly returned for the same death, is also being conducted by the Census Bureau in special connection with this association.

Taken altogether, it is the purpose of the Census Bureau to keep in touch with all classes of effort to improve the registration service of this country and to make vital statistics a more influential factor in the practical work of sanitary administration, recognizing the accurate registration of births and deaths as the absolutely indispensable basis of satisfactory public-health work. The full appreciation of this fact, the education of the people to the value of vital statistics and the necessity, if they be collected at all, that they be collected with such completeness and precision that they may be fully depended on, rests with the medical profession. All the systems of registration in this country owe their existence to the efforts of medical men, and now that it is possible to systematize and direct such efforts, through the thoroughly organized profession as embraced in the American Medical Association, the number of registration states and cities ought to be rapidly increased and the usefulness and ready comparability of vital data be greatly enhanced in the immediate future.

DISCUSSION.

Dr. Seneca Egbert, Philadelphia, stated that he has tried to impress on his students the importance of the proper registration of all vital statistics and their duty as physicians to return such data to whatever authority may be specified by the law. In 1903 he delivered an address on this subject before the Pennsylvania State Medical Society. He was led to select this subject by going over the volumes on vital statistics which comprise part of the United States Census Reports for 1900. One of the facts which appealed forcibly to him at that time was that Pennsylvania's registration returns were incomplete and unsatisfactory. Wherever the registration of vital statistics is improved the general sanitary conditions are also improved. Every physician should realize that there is only a comparatively small area of the country which is able to supply satisfactory vital data for use, and that it is important that the remainder of the states should adopt adequate and uniform registration systems at the earliest possible date.

Dr. C. C. Browning, Highland, Cal., asked Dr. Wilbur if he has given consideration to the topography of the country with reference to the probable cost and ability to secure vital statistics. For instance, Colorado is well down in the list in population per square mile. From there is a long break, which includes a large number of states of the middle west. Now there is an essential difference in population per square mile in Colorado and those other states. The other states are comparatively level states, with an agricultural country, where the population naturally is isolated, but fairly evenly distributed over the entire territory. In Colorado, and from there west, there is a comparatively small portion of each state that is habitable; the inhabitants are grouped together in fertile valleys to a certain extent, under irrigation systems. Of course there are mining industries, and in certain parts of California and Oregon there are large wheat-growing districts, but there one will find a country more analogous to Rhode Island, and Dr. Browning asked if that would have any bearing on the final result.

Dr. Cressy L. Wilbur said that registration would be certainly very much easier in the states that Dr Browning last referred to, and he very recently made a comparison of the distribution in the states of California and Colorado on that basis, showing the number of towns and the density of population in the different areas. Of course it is easier to get registration of deaths where the people are aggregated in somewhat densely settled communities. Dr. Wilbur said possibly it might be of use to have the resolution passed by the sanitary authorities of Pennsylvania indorsed by the section. The resolution is as follows:

> Resolved, That the registration of vital statistics is of paramount importance in sanitary administration, and that the Section on Hygiene and Sanitary Science earnestly commends the resolution of the Associated Sanitary Authorities of Pennsylvania in proposing the achievement of such statistics for Pennsylvania as the most pressing object for immediate effort by sanitary workers in that state

On motion the resolution was approved. This resolution was later referred to the House of Delegates and was approved by that body.

SOME TYPHOID EPIDEMICS STUDIED BY LABORATORY METHODS.[*]

WM. ROYAL STOKES, M.D.

BALTIMORE.

[From the Bacteriologic Laboratory of the State and the City Boards of Health.]

The object of the present paper is to briefly describe several epidemics of typhoid fever, in which the bacteriologic examinations enabled the State Board of Health to locate the sources of the infection, and in most of the cases to prevent further trouble.

The first outbreak of typhoid fever to be described occurred in a city numbering about 12,000 persons, in which one side of the city was in one state, and the other side was in a neighboring state. This circumstance gave each portion of the town a separate water supply, and in the portion which we shall call the south end, inhabited by about 6,000 persons, an outbreak of typhoid fever broke out, which affected several hundred persons.

The north side of the town, as mentioned above, was not supplied by the same water supply, and practically no fever occurred in this portion of the town. The towns were divided by a certain street, and it was said that the line of demarcation between the infected and non-infected portion of the city was a striking feature of the outbreak.

I did not visit the place personally, but was informed that the water supplying the infected portion of the town was obtained from a spring in a hollow, while the uninfected portion was supplied with water from a spring some distance away in the hills. I did not get any statement concerning the sewerage, and can not account for the pollution of the supply, but the bacteriologic examination from the spring showed 9,600 bacteria per cubic centimeter, and the colon bacillus was present in 1/10, 1, and 50 cubic centimeters of water. Two examinations of the tap water of the infected town showed 6,500 and 1,000 bacteria per cubic centimeter, and the colon bacillus was again demonstrated as above.

The interesting feature of this epidemic was the confirmation of the well-grounded suspicion that the water was infected. This was proved by the bacteriologic demonstration of the colon bacillus in the water.

The second epidemic was somewhat similar to the first one, since, in this instance, two suburban towns immediately adjoining each other formed a marked contrast. R—— P——, a town of about 2,000 inhabitants, was furnished with water from a spring, which only contained 15 bacteria per cubic centimeter, and in which the colon bacillus was not detected even in 50 cubic centimeters. About one month after this examination was made, an outbreak of typhoid fever occurred in the adjoining town. This town numbered about 750 inhabitants, and there were 33 cases of typhoid fever. The water supply of the first town was again examined, and only 35 bacteria per cc. were found, and no colon bacilli were detected in 50 ccs. of water. Not a single case occurred in this place, but in E—— P—— the contrast was marked.

On investigating the water supply, it was found that the water was supplied from artesian wells, and the bacteriologic findings were at first quite difficult to reconcile with this fact. Seven specimens were examined, from various houses in the town, and *Bacillus coli com-*

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[*] Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

munis was found in three instances. Two of the houses not showing the colon bacillus, however, were supplied by the pure water of R—— P——. The bacteria were never over 50 per c.c., thus retaining the count characteristic of deep ground water. The water from the pumping station and the water tower was next examined, and the colon bacillus was found in one cubic centimeter in both samples of water. The bacteria had now increased to 600 per cubic centimeter.

The sanitary survey explained the source of the contamination, and the following description of this investigation is therefore of some interest:

In addition to the artesian wells referred to above, there was a spring located in a ravine between the two villages. This spring was used occasionally to flush out the artesian wells when they became clogged with sand and gravel.

The water in the tower was not used constantly throughout the service, but was drawn on when an excessive demand was made on the wells. This accounts for the fact that the colon bacillus was not always found when examinations were made of the water from the various houses.

A later examination than that noted above showed colon bacilli in the spring, in the water tower, and in six houses, but demonstrated its absence in water drawn directly from the artesian wells when the spring was disconnected from the wells.

As a result of these findings, the spring was entirely disconnected from the service, and all water was drawn from the water tower. The water tower and pumps were filled with a 1 to 1,000 solution of formalin, which was allowed to stand for 48 hours, then drawn off, and he same flushed for 24 hours with water from the pure ells. After a week, the bacteriologic examination showed the absence of colon bacilli from the tower, wells, and service, and 10 bacteria per cc.

Since that time, monthly examinations have demonstrated a continuation of this condition of the water, and no cases of typhoid have since occurred in any household supplied by this service.

A contributory confirmation of the fact that the water caused the typhoid fever was observed in a slight outbreak that occurred in a convent about one mile from this town. On investigation, it was found that this convent obtained water by a pipe-line from the infected spring mentioned above. The colon bacillus was found in the water, and the bacteria per cubic centimeter numbered 3,000. The colon bacillus disappeared from this supply after the remedies were applied which have been mentioned above.

Just after this outbreak subsided in E—— P——, three cases were reported in the same house at R—— P——. An examination of the water again showed very few bacteria, and no colon bacilli. It was found that the milk was served to this house by a milkman whose son was the last person to develop typhoid fever in the epidemic just described. The well which was used for washing the cans, and, perhaps, for watering the milk, was examined, and the colon bacillus was demonstrated in 1 cc.

It is very probable that this localized outbreak was caused by infected milk, since the patients were young people who did not leave the park for any considerable time, and the water they drank was proved to be pure by several examinations.

As is well known, milk furnishes an ideal culture medium for the typhoid bacillus, and even if a few are originally introduced into the milk, they will often enormously increase in numbers before they reach the consumer.

AN OUTBREAK OF TYPHOID TRACED TO THE MILK SUPPLY.

The next epidemic to be described could be clearly traced to the milk supply, and it is my opinion that infected milk is more frequently the cause of typhoid fever than is generally supposed.

Although there are a number of so-called milk epidemics of typhoid fever on record, yet the most conclusive study that was ever published was recorded by Fulton in the *Journal of Hygiene,* October, 1901.

These cases occurred in the town of Elkton, Md., which was supplied by water from a river in which the colon bacillus was not demonstrated in tests made at the time. This town had 2,542 inhabitants, and milk was supplied by four dairymen. A. had the largest number of customers, and during the fall Mrs. A. and her son both had typhoid fever, but they both continued to milk the cows and handle the milk during the early part of their attacks.

We were not allowed to examine the blood for the presence of the Widal reaction at the time, but after the patients had recovered, we received a specimen of the blood of Mrs. A., which still gave the reaction for typhoid fever. The presence of typhoid fever was thus proved, and a bacteriologic examination of the well on the dairy farm demonstrated the presence of the colon bacillus.

The milk might have been infected by the typhoid bacillus, either by watering the milk from the infected well, washing the utensils in the infected water, or by the direct infection of the milk with the typhoid bacillus by means of fingers soiled with typhoid intestinal material.

A few days after these persons took to bed, three cases of typhoid fever were recognized in the town, all of which cases were on the milk route of this dairyman. During the next month, 61 cases developed, and in every case these persons were supplied with A.'s milk. Three cases occurred at this time, which were either imported or which could be traced to other causes.

This epidemic is a striking study, since these 61 cases all took milk from the one source, and a series of cases studied by the sub-department of health recently in Baltimore also showed that these cases were traceable to an infected milk supply.

It was noticed that a large number of cases of typhoid fever were occurring in a factory in the city which employed 1,500 young girls and women, and 400 males. Several physicians called the attention of the department to the cases that they were getting from this factory, but we had no method of finding out the exact number of cases which developed from the factory. On investigation, the number of absentees was reported as 200, but the manager thought that many of these employes were absent from other causes than sickness. Several deaths occurred, but here, again, we could not obtain exact numbers.

The water supply was obtained from the city mains, but is run through a coil of pipes in ice. All the employes used this for drinking purposes, but it was noted that practically all the cases of typhoid fever were females.

This made us think of some special article of diet which was only used by the girls and young women, and on inquiry we learned that a light lunch, consisting of a sandwich and milk, was furnished to the employes.

Practically all the women took their lunch in the factory, but the men preferred the beer of a neighboring restaurant, and did not take lunch in the factory.

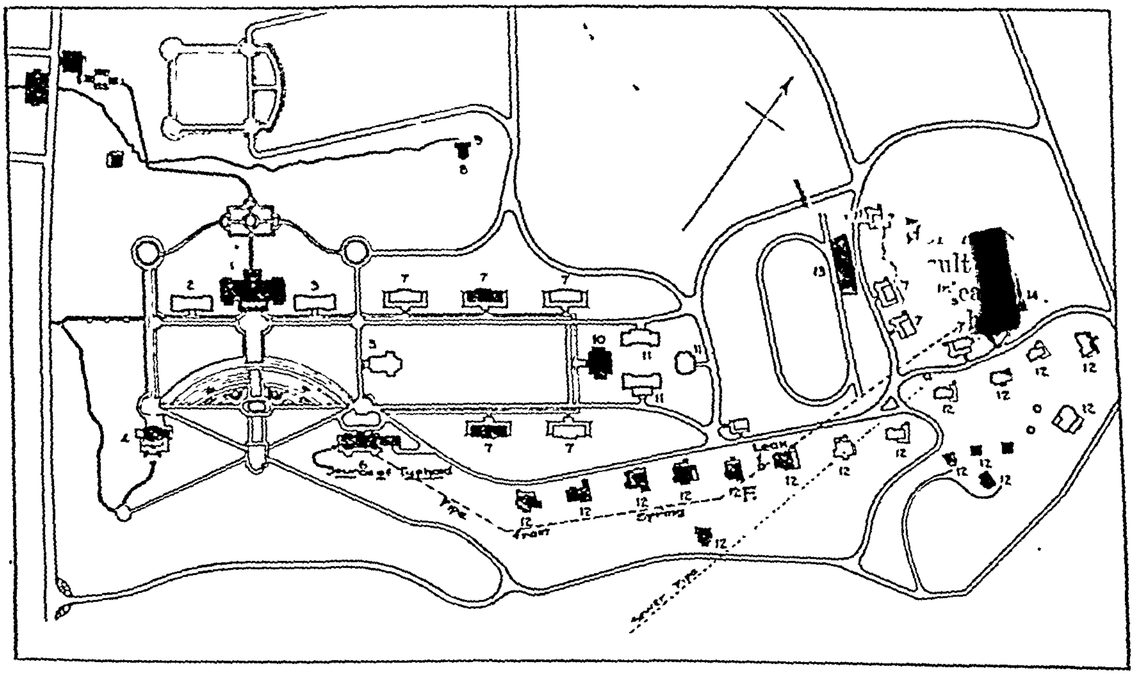
This milk was furnished in 20-gallon lots by a dairyman just outside the city limits. In company with an inspector, I visited the farm, and found it in the following condition:

The house was in a valley about 50 feet from the road, but we could not get any history of typhoid fever there or in the neighborhood. The well was 25 feet from the house, and 100 feet deep. It was not protected from surface drainage, and the privy was about 50 feet from the well, the ground being level. There was a boggy stream of water flowing from the well towards the privy, which contained a box full of fluid fecal material, and the place for cooling the milk was next to this place. Many flies were about the box, and could easily enter the cooling room from this place. Chickens were found in the cooling room, jumping over bottles. The cooling box for cans contained a slimy, rusty lot of water.

The bacteriologic examinations made from the factory showed that the water did not contain any colon bacilli, and only 450 bacteria per cubic centimeter, and the ice was also free from intestinal pollution, but contained 1,800 bacteria per cubic centimeter.

The milk contained 4,500,000 bacteria per cubic centimeter, and the colon bacillus was found in 1/1000 of a cubic centimeter. This showed concentrated fecal pollution of the milk supply, and the water from the well on the dairy farm also contained the colon bacillus and 6,000 bacteria per cubic centimeter. The ice contained the colon bacillus in 1 cubic centimeter, and ran 5,000 bacteria per cubic centimeter.

It will be seen that all of these findings confirmed the suspicion that the milk was the cause of the epidemic, and explained the exclusive incidence of the outbreak among the females, since these were the only employes of the factory that drank the infected material. The milk was discontinued, and we had no further complaint from the factory.



Plot of the grounds and buildings: 1. Memorial Hall. 2. Library. 3. Science. 4. Directors' residence. 5. Chapel. 6. Institute Inn. 7. Dormitory. 8. Power house. 9. Laundry. 10. Gymnasium. 11. Dining hall. 12. Instructors' residences. 13. Grandstand. 14. Infirmary. The buildings in solid black are completed, those in outline are proposed.

In the suburban community of S——, numbering 400 persons, we were able to prove a rather long period of incubation by a study of the outbreak.

The pump from the deep well which supplied good drinking water became disabled on the night of July 3. Several examinations of this water showed about 250 bacteria per cubic centimeter and the colon bacillus was not found in 1 or 50 cubic centimeters.

The supply for July 4 was drawn from a well which contained 3,000 bacteria per cubic centimeter and the colon bacillus. On July 5, the regular supply was restored. The use of infected water was therefore confined to July 4. On July 9, 10 and 11, some 25 persons were seized with gastrointestinal symptoms. All had diarrhea, and nearly all had fever. One had fever, bloody stools and loss of weight; two had delirium, chills, fever, and diarrhea. All recovered in from three to seven days. None of these were regarded as cases of typhoid fever. On July 27, two young ladies, and on August 1, a third, fell ill of typhoid fever. Other sources of infection than the water supply of July 4 were carefully excluded. Here, after one day's exposure, we have incubation periods of 23 and 28 days. The attack rate was .75 per cent. among 400 people of all ages.

The last outbreak of typhoid fever which I shall describe occurred at ——, a large college situated on a high bluff overlooking a river. The community numbered about 300 persons, including professors, students, day scholars, and attendants.

The diagram shows the situation of the principal buildings, and a general description of the plan of the institution is unnecessary. It is important to mention the situation of several buildings, however, in order to describe the interesting points concerning the conveyance of the typhoid infection.

It will be noticed that No. 14 indicates the infirmary, and that the line marked "S" indicates the course of the sewage pipe from the infirmary down a slope, to empty later into the river. At the point marked "Spring," the sewage pipe passed within 20 feet of this spring, and the circumstances to follow are so suspicious that it seems probable that the spring was infected by seepage from the sewer pipe through the ground to the spring. It was reported at the place that the pipes were dug up, and no gross leakage discovered, but this does not entirely preclude the existence of a break or slight seepage farther away from the spring.

W. P., aged 16 years, visited Pittsburg, Pa., for the Christmas holidays, 1903. Returning to school, he was attacked the middle of January and sent to the infirmary, where he went through an ordinary attack of typhoid fever, and was discharged March 5. The subsequent cases occurred as follows: March 3, 1 case; March 5, 1 case; March 7, 2 cases; March 8, 1 case; March 10, 3 cases; March 13, 1 case; March 14, 2 cases; March 15, 3 cases; March 16, 1 case; March 18, 1 case; March 19, 2 cases; March 21, 2 cases. This whole group all took their meals at the institute inn, except one teacher and his child of 2 years, and a young woman visitor of 26 years. No servants were attacked in any part of the institution.

The sewer pipe from the infirmary ran down the terrace and passed within 20 feet of the spring, and continued thence down to the bottom of a ravine, about one-quarter of a mile.

Among the day pupils there was but one case reported, a girl of 14 years, who had good opportunities to get an infection at home, in an adjoining village.

It will also be noted in the diagram that 12 F indicates the residence [illegible]f. K., and he was the only professor who developed the fever. Two cases occurred in his house, and on inquiry we found that he had been drinking the water which had appeared above ground as a leak in the pipe from the spring which has just been mentioned, and which was situated down the hill about 100 yards from the infirmary. This spring also furnished the inn, marked No. 6, with water. It will thus be seen that the only persons who developed typhoid fever drank water from this special spring; and it may be mentioned in passing that those who escaped the fever obtained their drinking water from other springs or sources which it is not necessary to mention in this report.

In order to eliminate other causes, so far as possible, the ice which had been occasionally used by a druggist for ice-cream sodas sold to students, was examined, and it was found to contain 1,350 bacteria per cubic centimeter, but no colon bacilli were found. The milk from the inn from which all the cases of typhoid fever had developed was also examined, and only 45,000 bacteria per cubic centimeter and no colon bacilli were demonstrated. Samples from four springs, which supplied the students who did not develop typhoid fever, did not show any colon bacilli in 1 or 50 cubic centimeters, and the bacteria varied from 3 to 150 per cubic centimeter. The spring at the foot of the hill from the infirmary, and which supplied the inn with water, contained 300 bacteria per cubic centimeter, and Dr. W. W. Ford found that it contained the colon bacillus.

I isolated an organism from this spring, which was first thought to be the typhoid bacillus, as it was very motile, did not produce indol or gas, did not liquefy gelatin, decolorized by Gram's method, grew invisibly on potato, and was similar to the typhoid bacillus in its microscopic appearance and the appearance of its colonies. It slowly rendered milk alkaline, however, and was not pathogenic for guinea-pigs by intraperitoneal injection. It only agglutinated at a dilution of 1 to 10 in an immune serum of the agglutinative strength of 10,000, and did not agglutinate at 1 to 50 with typhoid fever specimens which readily agglutinated known typhoid organisms at this dilution. Although similar to the typhoid bacillus, it was not regarded finally as a true typhoid bacillus.

It is impossible to state positively that the first case of typhoid fever, which had been contracted in Pittsburg, was the cause of the outbreak, but it seems probable that the sewage from the infirmary that housed this case infected the spring. It is certain that the cases of typhoid fever which occurred after this were caused by this infected spring, since no cases occurred in persons who did not use this water. The outbreak ceased as soon as the use of the spring was discontinued.

It might be stated in conclusion that a careful sanitary survey in cases of typhoid outbreaks is of great importance, but that bacteriologic examinations of water and of other fluid foods will frequently confirm well-grounded suspicions by positive evidence. I am indebted to Dr. J. S. Fulton for much information found in this report.

DISCUSSION.

Dr. Henry B. Baker, Lansing, Mich., asked Dr. Stokes if he followed the investigation any further than finding the colon bacillus. In the state laboratory of hygiene at the University of Michigan white rats are injected with inoculated cultures.

Dr. G. T. Swarts, Providence, R. I., asked whether chemical analyses were made, and in how many instances examinations of the locality were made as to pollution. The three factors called for are bacteriologic, chemical examination and sanitary inspection.

Dr. William R. Stokes stated that the test in the laboratory was only for bacteria per c.c. and the presence of the colon bacillus in one and in 50 c.c. of water. The three examinations were nearly always made. The State Board of Health has a regular form to be filled out by the inspector. The sanitary surveys are usually confirmed by the laboratory analysis. Dr. Stokes was unable to say how often the chemical examination agrees with the bacteriologic and in this particular epidemic he does not remember any chemical analysis, but they usually make three, the chemical, bacteriologic and sanitary surveys.

SOME UNCOMMON FORMS OF MULTIPLE NEURITIS,

INCLUDING FOUR CASES OF PUERPERAL ORIGIN.*

WHARTON SINKLER, M.D.

PHILADELPHIA.

It is only within a comparatively few years that multiple neuritis has been recognized as a disease. Twenty-five or thirty years ago it was an open question whether even diphtheria and lead palsy were due to a muscular affection or to disease of the nerves. As recently as 1879 Bristowe, in his Practice of Medicine, remarks, in connection with the pathology of lead poisoning: "But as regards the paralysis of the voluntary muscles, there is no doubt that Duchenne is right in regarding it as a consequence of nervous disorder. For if it were muscular not only should we find the muscular fibers degenerated in proportion to their loss of power, but we should find faradic contractility surviving as long as any healthy muscle was left. On the other hand, the rapid shrinking of the muscles, without degeneration, and their speedy loss of faradic contractility, obviously point to lesion either of the nerve-trunk or of their nuclei of origin." As soon as it was pointed out that there was such a disease as an inflammation of the peripheral nerves, the knowledge of the subject rapidly advanced and the various forms of polyneuritis became well known.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

By far the most common variety of multiple neuritis is that due to alcohol. This was described by Samuel Jackson, Sr., of Boston in 1822 as alcoholic paraplegia, but it has only been since the researches of Ross, Buzzard, Hun and others that the paralysis resulting from the excessive use of alcohol was known to be due to inflammation of the peripheral motor and sensory nerves. Alcoholic multiple neuritis is a comparatively common disease and may result from the excessive use of any beverages which contain alcohol. It was formerly thought that only spirits like brandy, whiskey and gin were capable of causing it, but it is now a recognized fact that even beer and light wines, if taken in sufficient amount, are capable of causing this affection. It is likely that persons leading a sedentary life are more liable to alcoholic neuritis than persons actively employed. This may account for the relatively greater frequency of alcoholic neuritis in women. Granted that the proportion of women who drink to excess is small as compared to the number of men who do so, there is a much greater number of cases of alcoholic neuritis among women than in the other sex. Starr says that of 250 cases of alcoholic neuritis which he has collected, there were 89 women. It is evident, therefore, that this is a large proportion compared with the ratio of drinking women to drinking men. It is most important, therefore, to bear in mind the fact of the comparatively frequent occurrence of alcoholic neuritis in women, especially in those who would not be suspected of the use of alcoholic stimulants. There is no doubt, however, that the habit of tippling in women exists to a considerable extent and one should always consider the possibility of alcoholism as a cause of neuritis in women.

One sometimes meets with cases in which there is only numbness of the extremities with a certain amount of impaired power, which must be considered as a mild form of multiple neuritis, and these cases are often observed in drinkers. They do not progress to the point of complete loss of power nor to very great sensory disturbance, but would undoubtedly reach a serious degree if unchecked.

The enormous consumption of various patent medicines, which are advertised as "nerve tonics," "health restorers," "blood purifiers," etc., is a much more frequent cause of alcoholism than is generally realized. Most of these preparations contain a larger percentage of alcohol than is found in wine or beer. In a recent number of the *Ladies' Home Journal,* the able editor, Mr. Edward Bok, points out in a straightforward way the dangers of using patent medicines, and shows that many of them contain alcohol, cocain, opium and other dangerous drugs, and quotes the Massachusetts State Board analyst in furnishing a list of patent medicines, with the percentage of alcohol each contains, ranging from 14 to 47 per cent.

Another cause of multiple neuritis which is becoming quite frequent in the large cities is the result of coal gas poisoning. In New York a large number of cases of coal gas poisoning are admitted to the hospitals every year, and a considerable proportion of these is followed by a severe type of sensory neuritis, which is very obstinate in responding to treatment.

Another and increasing cause of neuritis is poisoning by carbon disulphid. This is absorbed in the system by workers in rubber, from the inhalation of fumes from the heated rubber or from the dust containing particles of rubber which are inhaled. The earlier symptoms are general anemia and disturbance of the digestion. Following this, are paralytic and ataxic symptoms, with other evidences of neuritis.

Metallic poisons may produce multiple neuritis when taken internally or absorbed through the skin or lungs by workers in these substances. Among the most frequent of these is lead. As is well known, painters and manufacturers of white lead are frequently affected by this substance, but plumbism is also observed in other workmen. For example, those employed in china factories in which the glaze used contains lead are liable to lead neuritis.

An unusual source of poisoning is white lead in powder when used as a cosmetic. Some years ago I saw a young girl who had been in the habit of applying to her face a powder of lead carbonate, and she had, as a result, paralysis of the extensors in both the upper and lower extremities and was almost entirely helpless.

Copper, phosphorus and mercury may produce lead neuritis in those who work in these metals. Among hatters who handle nitrate of mercury in one of the felting processes, neuritis is not uncommon. Arsenical neuritis has been recognized for many years, but it is only occasionally seen as a result of the internal administration of arsenic for medical purposes. I have seen two or three cases of chorea which had been treated with Fowler's solution, in which multiple neuritis was produced. The following case is an example of this:

Case 1.—Multiple neuritis following the administration of Fowler's solution.

Patient.—G. S., aged 7, was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases, January 19, 1900.

History.—The child has been healthy and normal, with the exception of knock-knees, for which he was treated successfully several years ago. A few weeks before admission he had an attack of rheumatism in the knees, associated with catarrhal jaundice. Following this, he had pronounced chorea, which was general. He was treated by the family physician with Fowler's solution of arsenic, given in increasing doses, and in a few days was taking twelve drops three times a day. About two weeks previous to admission, he began to have difficulty in walking, and finally became so weak in the lower extremities that he was unable to walk.

Examination.—On admission the child was found to be thin and there was marked discoloration of the skin in the groins and on inner side of the thighs. There was foot drop and he was unable to walk. The arms were weak, but he could feebly use the hands. Heart and lungs were normal; appetite was good. Electrical examination showed distinct reaction of degeneration in the anterior tibial and peroneal muscles, and very slight response to the faradic current in the anterior tibial and in the calf muscles. The knee jerks were absent, but there was no loss of sensation.

Treatment.—Massage and electricity were ordered and the boy gradually improved, but slowly. It was not until October, 1900, eight months after his admission, that he had entirely recovered. By this time he walked perfectly well and had full strength in his arms.

An epidemic of multiple neuritis occurred in England in 1899, as a result of drinking beer which was contaminated with arsenic. It was found on investigation that the source of the arsenic was the glucose which had been used in the manufacture of the beer. Starr,[1] in an interesting article on the causation of multiple neuritis, referring to this epidemic in England, says: "Glucose, as is well known, is derived from corn and other kinds of starch by the action of sulphuric acid. Sulphuric acid is now manufactured from arsenical pyrites, and such acid is rarely free from arsenic."

Multiple neuritis is known to accompany or to be a sequel of diphtheria, grippe, typhoid and malarial fevers, and, in fact, any of the infectious diseases. Spiller has recently reported an interesting case of general neuritis following an attack of gonorrhea.

I have not seen reported any cases of multiple neuritis following puerperal septicemia,* and I will therefore record four cases which have come under my own observation:

CASE 2.—Multiple neuritis following uncomplicated labor.

Patient.—Mrs. O. G. H., aged 21, was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases, March 20, 1900.

History.—The family history is unimportant. The patient llpox many years ago, and in the summer of 1898 she ttack of appendicitis, from which she recovered withperation. She has always enjoyed good health, but has been of a nervous temperament. She was married in November, 1898. Her child was born February 15, 1900. She had been perfectly well during the whole period of gestation. The labor was hard, lasting thirteen hours, but terminated without the use of instruments or anesthetics. There was no laceration. Patient did well, and there was no rise of temperature nor any evidences of septicemia. On the eighth day, she was able to sit up in bed and was feeling quite well. She had an abundance of milk and nursed her baby. At this time she noticed a difficulty about raising the left hand to the head and that there was a sensation of pins and needles in the fingers and tingling in both hands and face. Some hours afterward, she found that there was weakness in the right arm, and by evening it was found that the feet and legs were in the same condition as the upper extremities. On the ninth day, the patient sat up out of bed in a chair, but she could not move the hands, arms, legs or feet, and the extremities felt as though they were asleep.

Examination.—Her condition remained about the same until March 1, when she was seen by Dr. Ott. He noted at that time that the skin was hyperesthetic, that there was some loss of electro-faradic contractility and complete loss of power in the upper and lower extremities. There was also weakness of the voice. On admission to the hospital, she was found to be well nourished, her color was good, and there were no evidences of anemia. She was absolutely helpless and could not move either the upper or lower extremities. Sensation was normal as to touch and localization, and there was no thermal anesthesia. There was no decrease in the rate of transmission of pain sense, and the pain sense was acute. Dr. A. G. Thomson examined the eyes and reported: "The pupils are slightly dilated, but react to light and accommodation. Media is clear; disc in right fundus is normal; left temporal side of he disc is a little pale, but otherwise there is absolutely no hange. There is complete paralysis of the right externus uscle and also complete paralysis of the left internus. Form elds are normal." The urine contained no albumin nor sugar; was alkaline and contained a phosphatic deposit. There as no loss of vesical or of rectal control. An electrical exnination by Dr. H. P. Boyer resulted as follows: "Reaction degeneration in [illegible] the muscles of the legs and arms; radic response very [illegible] in all of these muscles; in the ialis anticus there is [illegible]radic response."

Treatment.—The patient was treated by means of gentle massage and electricity, and was given strychnia internally. There was a gradual but steady improvement. On October 15, 1900, it was noted that she had improved in every respect; she was able to stand with a little support, but could not walk. She had full use of her arms and hands and was able both to feed herself and to do some sewing.

Result.—The patient was discharged November 21, able to walk and improved in every respect. Muscular wasting was still present to some extent. An electrical examination was made by Dr. Boyer, January 13, 1902, nearly two years after the onset of the neuritis. There was normal galvanic reaction in all of the muscles, with the exception of the tibialis anticus in which there was reaction of degeneration. The faradic response was very slight in the tibialis anticus and in the cal muscles, but it could be elicited with a strong current. Th faradic reaction in the forearm and other muscles was good There was still some atrophy of the arms and legs.

CASE 3.—General neuritis following labor—septic.

Patient.—Mrs. M. S. R., aged 40, was seen in consultation with Dr. John M. Swan, to whom I am indebted for the following notes.

Family History.—Father living and well; mother died at the birth of the patient, of puerperal fever. No tuberculosis in the family, nor any other hereditary disease. Father is subject to violent headaches, and the patient has also been subject to severe headaches all her life.

History.—She had nearly all the diseases of childhood, but otherwise no serious illness. On February 10, 1899, after an apparently normal labor, she gave birth to a child. For two months previous to labor, patient complained of what she called "stitches" in her right side, feeling, she says, as if he "intestines were twisted." There had been pain in both leg for three weeks previous, and she was nervous and irritable Soon after delivery, she had severe pain in the right inguina region, which was so violent that it was impossible for he to sleep without being chloroformed, although morphia wa used, but without relief. For some time, this pain was supposed to be neuralgic, and she was treated accordingly. Th day after delivery, she was delirious and had a temperature o 103; the temperature continued high, ranging between 103 and 105 for three weeks. She was more or less delirious all of this time. At the end of three weeks, a mass was discovered in the right iliac region, which was painted with iodin and apparently dispersed. The temperature then fell to normal and remained so for several days, but it again rose, and for the next thre weeks ranged between 101 and 103. The mass on the right side was again observed. On April 7, 1899, nearly three months after delivery, she was operated on for appendicitis, and a large amount of pus was found in the right iliac fossa. Aft the operation, she improved and her mind became more o clear. It is a little difficult to determine exactly when th of power in the lower extremities appeared, as the pa condition was such that she has no recollection of wh curred during the first three weeks, but the husband pression is that the loss of power was discovered soon labor. At all events, the patient complained much of pai dull aching in both legs from time to time after her de and when she began to improve in her general condition the operation for appendicitis, it was found that ther total and complete loss of power in both legs.

Examination.—When seen in August, 1899, the was her condition: A well nourished woman, 5 fe in height, and weighing probably her normal weig 148 pounds. The skin and mucous membrane we appearance. The pupils were equal and responde tongue was moist and steady. The pulse was ra the volume was fair and tension low. The were normal. The liver was noted by Dr. from the fifth rib to 1½ inches above the c abdominal walls were extremely flabby, a fat very thick. At McBurney's point inches long, which is still red, the res appendicitis. Both thighs were at lower part. The feet were extende

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[1] Med. News, January, 1902.

* Since writing the above I have read an interesting article "Neuritis as a Complication of Some Portion to the Childing Process," by W. R. Nicholson, M.D., American Medicine, 28, 1904.

The joints seemed to be free, and sensation in both legs was good. The calf muscles were somewhat contracted, prohibiting free flexion of the feet. Knee jerk was absent on both sides. Temperature and tactile sense were preserved. There was no enderness over the nerve trunks and no edema of the ankles. here was total loss of power in both legs below the knee, but e patient could flex the thighs.

Electrical examination: No muscles below the knee, with e exception of the right gastrocnemius group, respond to e strongest faradic current. Galvanic current, 21 cells. In left leg, the posterior muscles show reaction of degenera- n. Otherwise the reaction is normal. There was no loss power in the upper extremities when the patient was seen, it is her impresion, as well as that of her husband, that was able at all times to use the arms. At the same time, is not an accurate observation, owing to the patient's eme illness and delirium for three weeks, as above stated.

SE 4.—Multiple neuritis following abortion and septi- a; death.

History.—Mrs. A. B., the patient, became pregnant about six months after marriage, and suffered excessively from morning sickness. At the end of two months, she had an abortion. Following this was a rise of temperature and general symptoms of infection. The attending physician curetted the patient and removed some portions of the placenta, but evidently did not clean out the uterus thoroughly, because, several days later, a large fragment of decomposed substance was passed per vagina. About a month after this, the patient began to complain of numbness in both the upper and lower extremities, and associated with this was loss of power. There was also some mental confusion and delirium at times.

Examination.—When seen by me, two months later, there was marked wrist and ankle drop. The patient complained greatly of subjective sensations of pins and needles in the feet and hands; she was unable to use the hands to any extent, and there was almost complete loss of power in both legs. She had not been out of bed for two months, and her temperature was between 101 and 102 constantly. There was constant rambling and delirium. The patient slept badly and was in a distressed and unhappy condition constantly. There was no abdominal tenderness or other evidence of pelvic disease. Her condition gradually but steadily grew worse, and she died about a month after I saw her.

CASE 5.—Neuritis following abortion.

Patient.—Mrs. N. R., aged 40, was seen by me April 24, 1900.

History.—She has two children, the youngest of whom is 17. Dr. Robinson of Danville, Va., sent her to me, with the following statement: "In April, 1895, I was called to see Mrs. R., who had been vomiting for some time, from pregnancy, and although she was a woman of extraordinary constitution, it weakened her greatly. I used all the usual remedies, and, failing to give relief, I attempted to bring about a miscarriage by the introduction of the catheter. The vomiting and purging, with the general aspect of the case, appeared septic, and I think the profound inertia of the uterus in non-response to my efforts was also due to sepsis. I finally forcibly dilated and emptied the uterus, not of a fetus, but of a foul-smelling mole. I irrigated with bichlorid solution, and then painted the inside of the womb with iodin and carbolic acid. The septic diarrhea continued, but the nausea ceased and did not return until some effort was made to check the bowels. About week after the operation, small, deep-seated, septic abscesses appeared in the buttocks and thighs, following the one after other in regular succession, and finally there appeared alysis of the extensors of both legs. She was unable to k for months. She was finally placed under the care of Bartholow, who treated her for many months. When she ned home, she had improved to the extent of standing the aid of crutches, but she had no motion nor power in tensors of the feet. I continued to use hypodermics of ia and to apply electricity for a long time, and finally able to walk about with her cane." The patient states sthesia in both legs was a marked symptom at the onset and that for many months they were very tender on pressure. At the beginning, the right index finger was also slightly hyperesthetic, but this soon passed off. She states that there was never any loss of power in the bladder or rectum.

Examination.—On examination, the patient was found to be a well-nourished and a healthy looking woman. She walked quite well and without the aid of a cane, but she was unable to flex the thighs when she walked. She can slightly flex the toes, but cannot flex the feet. Knee jerks were absent.

Electrical examination: Muscles all respond feebly to the faradic current, but there is no reaction of degeneration in the muscles of either the legs or the thighs. Muscles respond fairly well to a strong faradic current. The patient's weight, 171 pounds, seemed to be a factor in her walking, and she was therefore placed on diet to reduce weight.

Treatment.—She was treated by means of faradism, massage and the use of dry heat locally. The patient improved in a very marked degree and recovered a considerable amount of power in flexing the thighs and also in flexing the feet, so that she walked much better after a course of treatment lasting seven weeks. The patient again placed herself under my care in April, 1902. At this time, there was a marked improvement in the electrical reactions, compared with two years previously. There was no reaction of degeneration, and it took from 4 to 8 ma. instead of from 14 to 18 ma. to get response in the anterior tibials and calf muscles. After another period of six weeks' treatment, there was improvement in the muscles of the legs, so that she walked considerably better. There was still slight foot drop in both sides, but this did not interfere with the walk.

Beri-beri or kakke is an epidemic form of multiple neuritis which occurs in Japan, in the Philippines, and in other hot countries. It is a question as to whether it is due to diet or to some form of infection. It seems quite possible that there may be two sources of this epidemic form, as cases have been reported among fishermen and seamen, who have lived for a long while on a scorbutic diet, who have suffered from multiple neuritis, and, on the other hand, an epidemic of this disease has been seen in others who have lived on wholesome food.

Another class of cases is due to some dyscrasia, such as tuberculosis, carcinoma, rheumatism or diabetes. In many cases of rheumatoid arthritis, the muscular atrophy is clearly due to peripheral neuritis.

A short time ago a boy of six years of age was sent to my clinic at the Orthopedic Hospital and Infirmary for Nervous Diseases, as a case of poliomyelitis. There was marked atrophy of the arms and legs, with loss of power of motion and absence of knee jerks. There was, however, great tenderness on any movement, and this led to a close examination of the joints, which were found to be inflamed and swollen, and the child also had a temperature considerably above normal. It was, therefore, decided that the case was one of peripheral neuritis resulting from articular rheumatism.

Starr[1] describes a case of multiple neuritis in a gouty subject.

Cases of multiple neuritis are met with in which infection of some kind is evidently the cause, but exactly what the nature of the infection is cannot be determined. In some cases, it may be due to an autointoxication from gastrointestinal decomposition, and in others it seems to be the result of taking cold. These cases are closely allied to Landry's paralysis, and the diagnosis between this disease and multiple neuritis is difficult or impossible. The only difference between them seems to be that in Landry's paralysis the bulb becomes involved, and in multiple neuritis it does not. The following case is an illustration of this form of

Case 6.—Case of infectious multiple neuritis of unknown origin.

Patient.—E. D. H., aged 17, male, was seen Feb. 6, 1903.

History.—Father died from an acident; mother living and in good health. Several members of the mother's family have had tuberculosis. He had measles, chickenpox and whooping-cough in childhood, but never diphtheria nor scarlet fever. He had never used tobacco, alcohol, tea or coffee, and has always been regular in all his habits. He has worked rather hard since he was 10 or 12 years of age, but does not know of having injured himself by overexertion. In September, 1902, he was seized with a sharp pain in the right hypochondrium, which interfered with his breathing for a short time. He was in bed for two days for this reason, when he was relieved from the pain and was able to get up and go about. Three days later, he was awakened in the middle of the night with violent headache and fever. This continued for five or six days, his temperature being as high as 104 most of the time. On the third or fourth day from the beginning of the fever, he noticed weakness in the arms and legs, and it seemed to him that the muscles were wasted. In the course of a week, the loss of power rapidly increased and at the end of this time he was unable to walk and could use the arms very little. During this time there was no bladder nor rectal incompe- y, and there was no pain nor paresthesia in the extremi- . He gradually improved and after a month began to alk about and to use the arms a little.

Examination.—He was found to be very thin and generally poorly developed. There was marked anemia. There was general wasting of all of the muscles; the deltoids, more especially on the right, the biceps, triceps and, in fact, all of the muscles of the upper extremities, including marked atrophy of the intrinsic hand muscles. The legs also seemed atrophied but not to the same extent as the upper extremities; the right leg was more atrophied than the left. The muscles of the face, eyes and tongue were not involved. The grip was very weak on both sides, but weakest on the left. Flexion and extension of the forearms was good. The deltoid was completely paralyzed on the right side and the patient was unable to extend this arm; he could raise the left arm from the side, however. The muscular power of the legs was well preserved. He walked without difficulty.

Reflexes: Biceps, triceps and wrist jerks were all absent. The knee jerk was increased on the left side and on the right there was but slight response, but it was re-enforcable. Ankle clonus was absent; cremasteric and abdominal reflexes were present. The pupils were equal and reacted to light and to accommodation. The heart and lungs were normal.

Electrical examination: No reaction of degeneration was found, and there was good response to the faradic current in all of the muscles.

DISCUSSION.

Dr. John H. W. Rhein, Philadelphia, stated that in 1897 he reported a case of neuritis in a woman of 30 who developed, after childbirth, a neuritis affecting the muscles of both arms. Similar cases, however, had been previously reported by Kast, Moebius and others. Although in some cases there is fever, there was none in his case, nor was there present any evidence of puerperal infection. In these cases the onset is usually within two weeks after labor, and the paralysis may be in the distribution of either the brachial plexus or in the muscles supplied by the perineal nerve.

Dr. E. B. Angell, Rochester, N. Y., reported a case of lead paralysis. A young man, engaged in a tobacco factory, developed the curious habit of chewing lead car seals. He chewed two or three daily for a period of two or three years, when there followed one of the most marked types of lead neuritis Dr. Angell has ever seen. The patient now is quite recovered. Dr. Angell considers that in a great many of these instances, not only does the disease produce multiple neuritis, but that it makes possible neuritis from other causes. He believes that some of the cases, in which arsenic administered for chorea has been regarded as the cause of the neuritis, have been due to the depressing effects of influenza. He mentioned one case of chorea where the child was taking only five or six drops of Fowler's solution three times a day, yet neuritis occurred. He has seen mild cases of multiple neuritis in which vasomotor disturbance was shown by the presence of a slight vesicular eruption. In one case he noticed these spots on the child's fingers, and found that there was some sensory disturbance. As soon as the arsenic was removed the spots disappeared, and in the course of two or three weeks the sensibility was re-established. He saw a case last autumn that came absolutely from cold alone. A farmer had been in the habit of getting down on his knees in doing some of his work. He had been kneeling on the cold ground all day long, from early morning until late at night, and was rewarded by the most serious form of neuritis due to cold Dr. Angell has ever seen. The diagnosis of neuritis was made because the other symptoms were associated with tenderness of the nerve trunks. Since that time the case has become worse, and Dr. Angell is satisfied that there is now some cord involvement.

Dr. David I. Wolfstein, Cincinnati, reported a case of difficult diagnosis; for a time he could not decide whether it was a case of articular rheumatism or multiple neuritis without influenza, or influenza accompanied by multiple neuritis. It was further complicated by a very high fever and a valvular heart lesion, which made the diagnosis of articular rheumatism more plausible. However, after going about for a week or two he became nervous and weak and when Dr. Wolfstein saw him he had marked sensory symptoms, also pain along the course of the nerve trunks, and foot drop. After two or three days the symptoms left the leg to a considerable extent, but were present in other joints so much that articular rheumatism was suspected. There was no redness in the joints, but the pain was confined to the joints and to the muscles around the joints. The diagnosis of multiple neuritis complicating influenza was confirmed by the presence of the type of temperature so often seen in influenza, and by the further fact that a week or ten days afterward he was taken with double catarrhal pneumonia, so that Dr. Wolfstein thought his diagnosis was justified and that articular rheumatism could be excluded, notwithstanding that there was also present a valvular lesion of the heart. He has seen several cases of the sensory form of neuritis following influenza.

Dr. T. H. Weisenburg, Philadelphia, stated that, as an army surgeon, he spent several years in the Philippines, where he had abundant opportunity to study beri-beri. There are three forms, the dropsical, where the extremities are much swollen and all the serous cavities are filled with fluid; the dry form, where there is much atrophy combined with all the symptoms of multiple neuritis, and lastly, the mixed type, which combines the symptoms of the first two. It is impossible to obtain many autopsies. The etiology of the disease is still very much in doubt. Manson regards it a place disease, that is, the infection is caused by a toxin which is generated by a germ living in the patient's surroundings. This, probably, is the true explanation, for it is common to see in prisons the infection localized to certain localities. Rice and fish diet have also been given as a cause, but this, probably, is not so, for beri-beri exists where rice and fish diet are not exclusive.

Dr. C. C. Hersman, Pittsburg, Pa., said that it is possible that beri-beri has its nidus in the soil. Some writers on leprosy also claim that leprosy has its nidus in the soil. Dr. Hersman has seen one patient (a young man), who was so helpless that, if sitting on the floor, he was unable to rise, make a complete recovery. He has seen one case of multiple neuritis following a large dose of arsenic (rough on rats), which the woman had taken with suicidal intent. She developed multiple neuritis, extending to all the extremities, leaving her almost helpless, from which she made a good recovery after several months.

Dr. Wharton Sinkler, Philadelphia, declared that it is more than probable that the case to which Dr. Moore refers was due to an infection from the abscess in the right iliac region. Whether that was salpingitis or appendicitis he is, of course, unable to say, as he did not see the patient until six months after the onset of the neuritis. Dr. Swan, with whom Dr. Sinkler saw the patient, did not see her at the time of the onset of the trouble, as she was not from Philadelphia, but from many hundred miles away.

A CLINICAL STUDY OF HEMIPLEGIA IN THE ADULT.[*]

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There is no organic nervous disease more common than hemiplegia or a disease of which there has been more written, and yet the study of hemiplegia is always interesting and profitable. Advantage was taken of the excellent opportunities offered by the nervous wards of the Philadelphia General Hospital to make a study of hemiplegia. A number of cases were also studied in the nervous services of the University and the Polyclinic hospitals.

In all 160 cases were observed. Particular attention was paid to the following subjects: Heredity, prehemiplegic and posthemiplegic pain, atrophy of the muscles of the paralyzed and of the sound side, respiration, the various trophic phenomena, as edema and the arthropathies, vasomotor disturbances and hemichorea.

Of the 160 clinical cases, only 109 were considered in the study of heredity, prehemiplegic and posthemiplegic pain and sensation, because of the unreliability of some of the statements or the aphasic conditions. All of the cases were in the adult.

A greater portion were in the male sex, but the conditions were such that it was hardly fair to draw conclusions regarding the frequency of the disease in the sexes. It is, however, well recognized that hemiplegia occurs more often in the male than in the female. Of the 160 cases, 97 were right-sided. This proportion is, perhaps, not so great as one would expect, for most writers insist on the preponderance of right-sided hemiplegia.

HEREDITY.

Hereditary predisposition for hemiplegia in certain families has been observed, and it probably depends on a tendency to inherit a diseased condition of the blood vessels. Fourteen of the 109 cases gave such a history. In five the mother had hemiplegia, in five others the father, in one case both of the parents died of a stroke, in another the grandfather and the father had hemiplegia, while in two cases the grandmother and the mother each died of apoplexy.

Dr. Wm. G. Spiller has very kindly furnished me the details of a most interesting history of a patient who recently had a slight hemiplegia. Eight brothers and sisters of the patient's mother died of apoplexy, but his mother did not. The mother of the patient's mother also died of apoplexy. The patient himself has had two children, both of whom are living and well. This is a very extraordinary family history and shows how strongly the hereditary tendency may be. I have been unable to obtain the details of a similar instance in the literature.

In the histories obtained of most of these patients, a number of other children in the families were said to be healthy. It is necessary, therefore, to have an active contributory cause. It can be assumed that in the first ten cases the occurrence of hemiplegia in either the father or the mother was accidental, but in the last five instances the hereditary tendency was strongly manifest, especially in the last instance. There was neither a special tendency for the paralysis to involve the same side in the parent and the child, nor involve the same sex.

PREHEMIPLEGIC PAIN.

Weir Mitchell,[1] in 1893, called attention to the occurrence of prehemiplegic pain. He then recorded three such cases. In one the pain appeared two years before the onset of the hemiplegia and was violent in character. This patient had three strokes, all of which were preceded by pain. In another case the pains were accompanied by a painful swelling of the joints. Subsequently there was a cerebral hemorrhage and a resulting hemiplegia on the same side as the pains. The joint lesions persisted. Férré,[2] in a study of 126 cases of hemiplegia, found that 14 had prehemiplegic pain.

Seventeen cases of the 109 had pains of varying character before the onset of the hemiplegia. Of these in seven instances the pain was described as a violent, shooting, cutting pain, in two as a dull, aching feeling, and in five as a tingling, tired, numb, or a pins-and-needle sensation. In all these cases the pains occurred on the side of the subsequent paralysis, in one instance, as in Weir Mitchell's case, two years before, in another one year before, and in others six, three and two months respectively before the onset of the hemiplegia. Except in the above cases the pains were mostly felt for from twenty-four to forty-eight hours before or just before the onset of the paralysis. One patient complained of sharp, persistent headache for six months, another of a feeling like an electric shock just before his stroke.

The pains were manifested mostly in the muscular tissues and the articulations of the upper extremity, and less often of the lower extremity. Sometimes they were present in the chest and side of the face. In one instance the pain was present for six months only in the distribution of the sciatic nerve. Férré records three similar cases. In another case of an intelligent physician they were localized to the distribution of the median nerve for two days. Dr. A. S. Hamilton, of the Independence State Hospital of Iowa, has kindly furnished me with the record of a most interesting case of a man who was "aroused by something he knows not what, and almost immediately afterward it seemed to him as if an explosion had occurred very close at hand. He heard a terrific noise and saw a bright flash and at the same time felt as if he had been struck a very heavy blow in the side of the head. This was the beginning of an apoplectic seizure. About two hours after his stroke he became conscious, and since has persistently given the above facts."

In five of these cases the pains ceased after the onset of the hemiplegia. The pains occurring with hemiplegia are undoubtedly of cortical origin and several theories have been advanced to explain them. It has been thought that the congestion of the cerebral vessels which is supposed to precede the attack may be the cause. It is not to be denied that there may be cerebral congestion previous to an apoplectic attack, but it has seemed to me from the study of these cases that the so-called premonitory symptoms, as headache, fullness of the head, roaring in the ears and dizziness, are, on the whole, not so common as described. Most of the attacks come on without the slightest premonitory symptoms, either while the patient is at rest, or, as in a large number of cases, during sleep.

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[*] Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Weir Mitchell: Medical News, p. 421, 1893.

[2] Férré and Brissaud: Quoted by Marie, P., Hémiplégie, in Traité de Médecine et de Therapeutique, vol. viii, Paris, 1901.

Brissaud has explained these pains by an involvement of the meninges. This may be a satisfactory explanation for those cases in which the pains occur for some time before the onset of the hemiplegia, for in all of my cases in which the pains occurred for some time before the attack, in five, the pains persisted with equal severity after the attack began. In five of the milder instances, those in which the pains occurred one or two days before, they ceased after the attack began. In these cases and for the other similar ones in which the pain persisted it may be that cerebral congestion, or rather an actual small hemorrhage in the region of the sensory pathway, would explain the condition. No satisfactory explanation can be given, however, for the occurrence of pains limited to one nerve, as the sciatic, unless this was an accidental complication, probably a neuritis.

Still another explanation may be given. It is possible that in a hemiplegia due to a thrombosis a gradually diminishing blood supply to a part of the cortex would cause nutritional disturbance, which would account for the pain. In the cases under consideration, however, this did not seem to be the explanation.

POSTHEMIPLEGIC PAIN.

Hemiplegia can be said to be a painful disease. It is rare, indeed, for a person suffering from this affection not to complain of some form of ache or pain. In the 109 clinical cases studied, twenty-seven had distinct pain of a sharp, shooting character, twelve of different forms of paresthesia, and the other seventy patients complained of soreness in the muscles and joints of the paralyzed side, and in only five of the series was there no pain or ache complained of.

A subdivision may be made of these pains according to their character. In the largest class belong those persons in whom there is an uneasiness or feeling of soreness in the various joints and muscles of the paralyzed side, especially of the shoulder joint. This is not so apparent in the hemiplegics where there are little or no contractures, or where the spasticity is not marked, but in the patients in whom these conditions are prominent there is always some pain on movement. Then, again, there is the pain which is due to the weight of the arm dragging on an ankylosed joint.

A second subdivision may be made for those cases in which the patients complain of the different forms of paresthesia, as a feeling of tingling or numbness, a "growing" or a dull feeling, or an itching sensation. These may be present either in the whole affected side or only in the distal parts of the extremities. Twelve of my cases showed these phenomena. In the marked instances there was always an accompanying hypesthesia of the affected side either for touch and pain or for both. There are several explanations for these symptoms. Lessened blood supply and a consequent nutritional disturbance, and at times accidental injuries causing a neuritis, as by dragging of a limb, are very often the cause, but they are doubtless sometimes due to a cortical or subcortical lesion, especially in the cases where there are accompanying sensory changes.

In the third subdivision may be placed the pains of the more severe type. These are variously described as sharp, shooting, cutting, aching, twisting and so forth. Of the 109 cases, twenty-seven had more or less severe pain. These were mostly present in the upper extremity, and were more marked in the cases where ankylosis was extreme. They did not bear a special relation to the degree of atrophy present, as Brissaud and lately Marie have held.

I did not make any special study of the state of the sensation in the paralyzed side, but the following conditions were noted: There were two cases of total hemianesthesia for all forms of sensation and twenty-eight cases of hypesthesia for either touch or pain or both. Of these thirty cases, eight had little or no pain, five complained of paresthetic phenomena and seventeen of various pains. It may be said, therefore, that pain in hemiplegia is more liable to occur where there are sensory changes.

The pains were present mostly from the shoulder to the wrist, and from the hip to the knee and sometimes to the ankle. Again, they were at times manifested in the side of the chest. In most of these instances movement did not increase the pain. Diminished vascular supply, spasticity and sometimes an accompanying neuritis explains many of these conditions, but in a number of my cases the pains were undoubtedly due to a central origin.

It is my intention to take up the subject of central pain in a subsequent paper where posthemiplegic central pain will be more fully discussed.

RESPIRATION.

Hughlings Jackson,[3] in 1891, called attention to the fact that in the respiratory movements of hemiplegics the superior intercostal muscles of the paralyzed side have a greater amplitude in quiet or automatic respiration, but that in forced or extraordinary respiration the movements on the sound side are always greater. Since that time these observations have been confirmed, and lately by Clarke[4] and Bury.[5] Gowers,[6] however, does not think that there is any difference in the respiratory movements, and Boeri[7] believes that in most instances the respiratory movements are held back not only in quiet, but also in forced respiration.

In nearly every case of the 160 examined I was able to confirm Jackson's observation that in quiet or ordinary respiration the upper part of the chest of the paralyzed side expands more than does the corresponding part of the sound side, but that in forced respiration the movements on the sound side are always greater. The movements vary in different patients, sometimes the difference being hardly perceptible. The observation is made while the patient is either standing or sitting.

I have, however, observed that at the end of ordinary or quiet expiration the chest on the sound side has a longer range of movement, that is, that it retracts more than does the chest on the paralyzed side. If the patient is asked to lie down, this phenomenon is shown even more distinctly. Dr. Spiller was good enough to confirm this observation. This being so, it means that the amount of air expelled from the lung on the sound side is greater, that there is more remaining residual air at the end of expiration in the lung of the paralyzed side, and that the movement of the lung is actually weaker on the affected side.

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[3] Jackson, Hughlings: The Lancet, Jan. 14, 1893.

[4] Clark, L. P.: Am. Jour. Med. Scien., December, 1903

[5] Bury: The Lancet, Dec. 19, 1903.

[6] Gowers: Dis. of Nervous System, pp. 75, 89, vol. II

[7] Boeri: Gaz. Hebd. de Med., No. 7, p. 73.

If the lungs are percussed at the end of expiration, the note obtained on the paralyzed side is always deeper.

The amount of air breathed in during the inspiratory act is probably the same in either lung, but the lung on the hemiplegic side has to accommodate the same amount of air as the healthy lung, plus the increased quantity of residual air, hence the increased superior intercostal excursion. In forced respiration the diminished respiratory movements of the lung of the paralyzed side are easily seen. We must come to the conclusion, therefore, that both in quiet and in forced respiration the respiratory movements are diminished on the paralyzed side of the body.

The usual explanation offered has been the loss of the cortical inhibitory control over the medullary respiratory centers, and, as a result of this withdrawal of inhibition, the medullary center overacts in ordinary or automatic respiration.

It is well known that movements, not muscles, are represented in the cortex, and it may be expected, therefore, that in a lesion, such as would result in a hemiplegia, there would be total loss of function on the opposite side. That this is not so in muscles, which habitually act together, as in the elevation of the brow, in respiratory and laryngeal movements, is well known. Broadbent has explained this by the hypothesis that such functions are represented in both sides of the brain, and that in destruction of one cortical center the movements are controlled by the remaining center. This explanation has been generally accepted.

It is a fact, however, that the function of the muscles on the side opposite the lesion are always somewhat impaired, as, for instance, in looking upward, the brow on the affected side is not wrinkled so much, nor can a hemiplegic shut the upper eyelid alone on the affected side. It is to be expected, therefore, that the function of the respiratory muscles on the paralyzed side should be diminished.

The explanation of loss of inhibitory control is a purely theoretical one. We do not really know what loss of inhibition means. It is much more logical to believe that in a lesion, such as would result in hemiplegia, there would be loss of function of the opposite side, but that in bilateral functions, instead of a paralysis, there would be only a paresis of function, consequent to the still remaining cortical control of the sound side.

EDEMA.

A slight amount of edema in hemiplegia is not a rare condition. Mills,[8] in a study of sixty cases, found edema in seven. In only two cases did I find a great deal of edema. Allen[9] recently reported a case of extensive edema of the paralyzed side and was only able to collect three similar cases in the literature, those of Hare,[10] Preobrajensky[11] and Gilbert and Garnier.[12] In Hare's[10] case the edema was limited to the upper extremity and was sharply defined, there being a line of demarcation. Preobrajensky's case was complicated by an aneurism of the aorta and thrombosis of the vessels, while in Gilbert and Garnier's[12] case the edema was limited to a "succulent" hand.

The following history of a patient with intense edema of the paralyzed side is, therefore, of interest:

Patient.—S. B., aged 52. The family history is unimportant. Had syphilis twenty years before his stroke.

History of Attack.—Three years ago, without any symptoms of illness, he suddenly had an apoplectic attack which rendered him unconscious. Since that time he has had a left hemiplegia. Directly after his attack the whole paralyzed side became swollen, this being marked on the side of the face and chest, the swelling fading away as the median line was approached. The upper extremity was more swollen than the lower. The skin looked shiny and tense and there was no pitting to pressure. At the same time the joints of the affected side, especially the wrist and elbow joints, became much swollen and exceedingly tender to the slightest pressure. This edema gradually disappeared, leaving, however, a swelling of the elbow and wrist joints.

Subsequent History.—Examination three years after shows a left hemiplegia, with hardly any edema; the joints mentioned, however, are still a little swollen. Examination of the urine shows albumin, but no casts.

Two other cases were observed where the edema was confined to the paralyzed hand, giving it the appearance of a "succulent hand," similar to the case reported by Gilbert and Garnier.

No definite explanation has been given for this phenomenon. Vasomotor disturbance probably plays an important rôle, but it does not explain why in some cases we do have edema, no matter how slight, and not in others. It is probable, as has been pointed out, that any tendency to edema will be increased by an accompanying nephritis. This has recently been called attention to by Spiller.[13]

VASOMOTOR DISTURBANCES.

Vasomotor disturbances are very common in hemiplegia. The patient usually complains of a feeling of coldness in the paralyzed limbs, and very rarely of a feeling of warmth. It is not uncommon to see a blue condition of the paralyzed extremities brought on by the lessened circulation. Such phenomena, however, as a hemi-skin eruption and sweating are rare. A patient who had a hemiplegia of some years' duration called my attention to the fact that he did not perspire on the paralyzed side and, more curiously still, that the affected side of the face and arm did not tan in the sun so much as the healthy side. Another patient had an eczematous skin eruption which was limited to the paralyzed side.

POSTHEMIPLEGIC CHOREA.

The occurrence of various disorders of movement after an apoplectic attack are rare. Von Monakow[14] states that in twelve years he saw only two cases of posthemiplegic chorea. Spiller[15] states that he never saw a true instance of posthemiplegic chorea in an adult, and it has seemed to him that the term posthemiplegic chorea is a bad one, for the movements are not choreiform in character. Gowers[6] also calls attention to this, and does not use the term posthemiplegic chorea, but speaks of the various disorders of movement following hemiplegia. Marie also has recently spoken of the infrequency of posthemiplegic chorea.

A number of explanations have been offered for these phenomena. Charcot[16] was the first to call attention to this symptom and thought that there was in the internal capsule in the region of the *carrefour sensitif* a certain tract, a lesion of which would cause choreic movements. Kahler and Pick[17] thought that an irritation of the pyramidal tracts anywhere would explain the condition. Gowers[6] is of the opinion that these symptoms are caused by a lesion of the optic thalamus. Bonhoeffer has, perhaps, given us the best explanation. He believes that a lesion involving the anterior cerebellar peduncle of its continuation into the subcortical ganglia causes disorders of movement. Since Bonhoeffer's[18] paper other cases have been reported which support this observation.

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[8] Mills: The Nervous System and Its Diseases, p. 583.

[9] Allen: Jour. of Nerv. and Ment. Dis., p. 471, 1899.

[10] Hare: Jour. of Nerv. and Ment. Dis., p. 189, 1898.

[11] Preobrajensky: Ref. in Révue Neurolog., p. 73, 1897.

[12] Gilbert and Garnier: Comptus rend. de la Soc. de Biol., 1897.

[13] Spiller: Prog. Med., p. 201, 1900.

[14] Von Monakow: Gehirnpathologie, 1897.

[15] Spiller: Amer. Med. Assn., 1904, Proceedings Section of Neurology.

[16] Charcot: Quoted by Bonhoeffer, Monatsch. f. Psych. und Neurologie, vol. 1, No. 1.

The following case is of much interest in this connection:

Patient.—J. E., aged 63.

History of Attack.—In September, 1899, the patient had a slight stroke which affected his left side. He improved somewhat, but had a second attack two months afterward. It was not until two months after the second stroke that he developed an irregular movement of his left arm. His condition at present is practically the same, except that the irregular movements have become worse and have involved all of the limbs.

Subsequent History.—The last examination of the patient by Dr. Spiller is as follows: Power in the left upper and lower limbs is diminished, and these limbs are distinctly weaker than those of the right side. All the reflexes in the left side are increased, and Babinski's sign is present. The reflexes on the right side are normal. Sensation for touch and pain is diminished over the left upper and lower extremities. The patient has no knowledge where his left upper limb is, and, to find his left hand, he has to put first his right hand on the left shoulder. The sense of position is also lost in the toes of the left foot. He does not recognize a pencil, a key and a watch in his left hand, calling these objects a crucifix, but at other times he recognizes objects properly. There is marked ataxia of his left upper limb. The tremor in his left upper limb varies in intensity from time to time, sometimes it is only a movement from the shoulder, at other times the whole upper limb is involved. The movement is chiefly a lateral one from the shoulder, but there is at times a rotatory, flail-like movement. There is some tremor of the right upper limb at times, but it is much less important than that of the left upper limb. There is occasionally a tremor of both thighs, especially the left, consisting of a flexion and extension of the hip.

We have in this case a left hemiplegia of five years' duration, where, besides the ordinary symptoms, there are hypesthesia for touch and pain, ataxia, loss of the sense of position, asteriognosis, and a violent irregular movement of the affected upper limb, with milder movements of the other limbs. It is impossible to test him for hemianopsia, as he lost the sight of both eyes some years ago. A lesion in the parietal area would explain all of these symptoms, except the irregular movements. These movements probably are not hysterical, for suggestive treatment and static electricity have had no influence on him for the past five years.

A lesion involving the superior cerebellar peduncle and the posterior limb of the internal capsule would easily explain all the symptoms, and would correspond to Bonhoeffer's view. The slight tremor of the opposite side could be explained by a partial involvement of the other superior cerebellar peduncle.

The tremor which is present in this case could hardly be called choreiform in character. This was the only instance in which this symptom was observed in the series studied.

Dr. A. J. Smith has kindly furnished me with the record of a case of hemiplegia where violent movements occurred preceding the apoplectic attack. In this instance the movements were confined to the left arm and the left leg and the lower part of the face on the left side, the tremor being clonic in character, resembling a Jacksonian convulsion. This lasted for about two hours, after which there was a complete left-side hemiplegia.

Such convulsions, while not uncommon in uremic conditions, are rare in organic hemiplegia. Various disorders of movement are liable to occur preceding an apoplectic attack, but we rarely have the opportunity to observe them.

CEREBRAL MUSCULAR ATROPHY.

A great deal has been written concerning atrophy of the muscles in hemiplegia, and yet the cause of this atrophy still remains in doubt. It has been said that atrophy accompanies every case of hemiplegia, that it is not a complication but a symptom. Lately Marinesco[19] and Steinert[20] have confirmed this observation. In my own cases I also found that atrophy was present in every case. The degree of atrophy varies in different cases, sometimes coming on very early after the onset, and again not for some months.

The atrophy probably first manifests itself in the small muscles of the hand and in the muscles of the shoulder, it being, perhaps, more easily seen in the latter situation because of the bulk of the muscles and the bony prominences. It is more marked in those cases in which the paralysis is marked, and, as it has been pointed out by Mills,[8] it is greater in the distal part of the extremity. The lower limb is never so much affected as the upper limb. In the majority of cases sensory changes were found, this agreeing with other observers. In quite a large number of my cases considerable atrophy was also observed on the so-called sound side.

Charcot[21] in 1874 recorded his classic case of atrophy in hemiplegia, where microscopically secondary degeneration and atrophy of the cells of the anterior horns of the spinal cord was found. Since then his observation has been confirmed by a number of investigators. This has not been accepted, however, as an explanation for the atrophy, because later methods have failed to show atrophy of the cells of the anterior horn.

Borgherini,[22] Quincke[23] and Eisenlohr[24] believe that the atrophy in hemiplegia is due to an alteration of the trophic centers in the brain, these centers being situated either in the cortex or near the optic thalamus.

Darkschewitsch[25] and later Gilles de la Tourette[26] believed that the arthropathies which are so common in hemiplegia were the sole cause of the atrophy.

Steiner[27] thinks that there must be a congenital predisposition to disease in the cells of the anterior horn, for, he says, there is not atrophy nor alterations in the cells of the anterior horn in every case.

Roth and Muratow[28] believed that a destruction of the vasomotor tracts caused a disturbance of the blood supply to the muscles, thereby interfering with the nutrition and causing atrophy. Lately Luzzatto[29] has supported this view. Marinesco[10] thinks that normally the pyramidal tracts carry vasomotor impulses which act on the medullary center of the sympathetic system, and that in a hemiplegia these influences are destroyed, and there is a consequent stasis in the blood vessels, a lessened blood supply and atrophy. Oppenheim[30] and Von Monakow[14] also support the vasomotor theory.

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[17] Kahler and Pick: Vierteljahrschrift f. Praktisch. Heilkunde, Prag., 1879.

[18] Bonhoeffer: Monatschr. f. Psych. and Neurolog., vol. i, No. 1.

[19] Marinesco: Semaine Méd., Nov. 23, 1898.

[20] Steinert: Deutsch. Zeitschr. f. Nervenh., vol. xxiv, 1903.

[21] Charcot: Leç. sur les localisations, Oeuvres compl., vol. iv.

[22] Borgherini: Arch. f. klin. Med., vol. lxv, Nos. 5, 6.

[23] Quincke: Arch. f. klin. Med., vol. xiii, p. 402, 1858

[24] Eisenlohr: Neurolog. Centralbl., 1891.

[25] Darkschewitsch: Neurolog. Centralbl., 1891.

[26] Gilles de la Tourette: Soc. Méd. des Hôpitaux, 9, 1, 1897; ref. in Semaine Méd., 1897, p. 130.

[27] Steiner: Deutsch. Zeitschr. f. Nervenh., vol. iii, p. 280.

[28] Roth and Muratow: Ref. Archiv. de Neurologie, p. 300, 1891

Steinert[27] has very recently supported the theory that atrophy in hemiplegia is the result of the trophic influence of one neuron upon another. He believes that the cortico-spinal motor tract or the upper neuron has a direct influence on the lower neuron, and that in a lesion of the former there should be alterations in the latter.

ARTHROPATHIES.

Recently Marie[2] defined for us what is to be understood as an arthropathy in hemiplegia. It is, according to him, a disturbance of function in the articulations of the paralyzed side, especially of the shoulder; the voluntary movements are very limited, and pain is caused by the attempt to move the limb passively, but there is neither reddening nor tumefaction except, perhaps, in some tendinous sheaths.

That this condition was not quite understood by the older writers is evident by the description of Charcot,[31] according to whom the arthropathies of hemiplegia are a late manifestation and are characterized by pain of greater or less intensity closely resembling the painful crises of rheumatism, and are accompanied by reddening of the skin, tumefaction of the articulations, with an increase in the synovial fluid.

Weir Mitchell[1] described a similar condition, but in his case the painful swelling of the joint came on four days after the onset of hemiplegia. The same author also described a painful condition of the joints preceding the attack of apoplexy.

Marie does not consider these as pure nervous arthropathies, but as arthrites of probably infectious origin, and he further justly remarks that there is no resemblance between these neurospinal arthropathies and the simple arthropathies so common in hemiplegia, and that at the autopsy one finds in the latter only a slight degree of synovitis without lesion of the cartilages, but marked participation of the synovial tendon sheaths.

I have found in only one case the arthropathy Charcot speaks of, viz.: in the patient previously referred to, when discussing edema. This man, a few days after his seizure, had great edema on the paralyzed side with marked swelling of the elbow and wrist joints and a lesser involvement of the shoulder joints. These joints were very painful and tender to pressure, the skin was reddened and there was tumefaction of the articulations. The joints of the lower extremity were not involved. The pain persisted about one year, and at present, three years after the attack, there is still a swelling of the elbow and wrist joints, it being possible to move the articulations in any direction.

I have observed still another patient, in whom it was possible to move the wrist and all the finger joints freely in any direction. This woman gave no history of pain nor tenderness in the affected parts, but said the flexibility came on gradually. In two more instances I have observed a similar condition in the articulations of the fingers only.

It may be that the painful joints spoken of by Charcot and also present in one of my cases are caused by an infection. It has seemed to me, as Gowers[6] has already pointed out, that there is an analogy between this condition and the similar inflammation which is secondary to acute myelitis.

There is also a similarity between the painless arthritic conditions present in three of my cases and the arthropathies found in chronic spinal diseases.

In the majority of hemiplegias we find the condition described by Marie. The shoulder joint is usually most affected, but in cases where the contractures are marked all of the joints may be involved. Many theories have been advanced to explain the cause of these arthropathies. Charcot and Joffroy believed that they were due to a secondary alteration in the cells of the anterior horns; Hitzig,[32] to the pulling on the articulations and the tendons by the weight of the paralyzed extremities; Gillés de la Tourette,[33] to the forced immobility; Marinesco,[34] to vasomotor disturbances, and by others to rheumatism.

Most probably the cause can be ascribed to the forced immobility plus the pulling on the articulations and tendons by the weight of the paralyzed member. Alterations in the cells of the anterior horns are not common in hemiplegia. I have examined the cells of the anterior horns in eight cases of hemiplegia. In most of these there were marked contractures and arthropathies, without finding any pathologic changes. Spiller[35] reported a very interesting case of unilateral internal hydrocephalus, where the contractures were very marked, but the cells of the anterior horns of the spinal cord were perfectly normal. Vasomotor disturbances probably play no important rôle in these arthropathies and there is no reason to expect a greater tendency to rheumatic conditions in hemiplegia than in other organic nervous diseases.

This paper will be followed by a pathologic study of hemiplegia.

I am indebted to Drs. Wm. G. Spiller and Chas. S. Potts for the privilege of studying their cases and to Dr. G. Walter, the resident physician, for her assistance.

DISCUSSION.

Dr. Guy Hinsdale, Hot Springs, Va., stated that some cases of hemiplegia which he has seen have been accompanied by the rather curious feature of yawning. At the same time there is a decided tendency to move the paralyzed arm and the paralyzed leg. He has never been able to understand why the process of yawning should start motion in the paralyzed limb, but supposes that it is reflex, though the movement is not a sudden, quick movement, as seen in the knee jerk, but is a much more deliberate one, such as putting the hand up to the head and down again.

Dr. Hugh T. Patrick, Chicago, asked whether the pre-apoplectic pain in the paralyzed parts occurred previous to thrombotic or hemorrhagic apoplexy. If that pain precedes the development of the apoplexy from the hemorrhage, then he does not understand it all. If it precedes the thrombotic variety, then it seems to him that it is quite naturally in line with other symptoms. Dr. Patrick said that, according to Hughlings Jackson, in using the extremities on one side the action of the trunk muscles is more especially on the opposite side. For instance, using the muscles of the right arm naturally produces as a balancing factor a contraction of the trunk muscles on the other side. In carrying a pail of water or in lifting, the resistance must be on the side of the trunk opposite this symptom and thought that there was in the internal capsule in the region of the *carrefour sensitif* a certain tract, a lesion of which would cause choreic movements. Kahler and Pick[17] thought that an irritation of the pyramidal tracts anywhere would explain the condition. Gowers[6] is of the opinion that these symptoms are caused by a lesion of the optic thalamus. Bonhoeffer has, perhaps, given us the best explanation. He believes that a lesion involving the anterior cerebellar peduncle of its continuation into the subcortical ganglia causes disorders of movement. Since Bonhoeffer's[18] paper other cases have been reported which support this observation.

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[29] Luzzatto: Deutsch. Zeitschr. f. Nervenh., vol. xxiii, 1903.

[30] Oppenheim: Lehrbuch der Nervenkrankheiten, 3d ed., p. 612, 1902.

[31] Charcot: Quoted by Marie.

[32] Hitzig: Quoted by Marie.

[33] Gilles de la Tourette: Nouv. Iconoge., p. 287, 1897.

[34] Marinesco: Revue Neurolog., No. 14, 1894.

[35] Spiller: Am. Jour. Med. Sci., July, 1902.

The following case is of much interest in this connection:

Patient.—J. E., aged 63.

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We have in this case a left hemiplegia of five years' duration, where, besides the ordinary symptoms, there are hypesthesia for touch and pain, ataxia, loss of the sense of position, asteriognosis, and a violent irregular movement of the affected upper limb, with milder movements of the other limbs. It is impossible to test him for hemianopsia, as he lost the sight of both eyes some years ago. A lesion in the parietal area would explain all of these symptoms, except the irregular movements. These movements probably are not hysterical, for suggestive treatment and static electricity have had no influence on him for the past five years.

A lesion involving the superior cerebellar peduncle and the posterior limb of the internal capsule would easily explain all the symptoms, and would correspond to Bonhoeffer's view. The slight tremor of the opposite side could be explained by a partial involvement of the other superior cerebellar peduncle.

The tremor which is present in this case could hardly be called choreiform in character. This was the only instance in which this symptom was observed in the series studied.

Dr. A. J. Smith has kindly furnished me with the record of a case of hemiplegia where violent movements occurred preceding the apoplectic attack. In this instance the movements were confined to the left arm and the left leg and the lower part of the face on the left side, the tremor being clonic in character, resembling a Jacksonian convulsion. This lasted for about two hours, after which there was a complete left-side hemiplegia.

Such convulsions, while not uncommon in uremic conditions, are rare in organic hemiplegia. Various disorders of movement are liable to occur preceding an apoplectic attack, but we rarely have the opportunity to observe them.

CEREBRAL MUSCULAR ATROPHY.

A great deal has been written concerning atrophy of the muscles in hemiplegia, and yet the cause of this atrophy still remains in doubt. It has been said that atrophy accompanies every case of hemiplegia, that it is not a complication but a symptom. Lately Marinesco[19] and Steinert[20] have confirmed this observation. In my own cases I also found that atrophy was present in every case. The degree of atrophy varies in different cases, sometimes coming on very early after the onset, and again not for some months.

The atrophy probably first manifests itself in the small muscles of the hand and in the muscles of the shoulder, it being, perhaps, more easily seen in the latter situation because of the bulk of the muscles and the bony prominences. It is more marked in those cases in which the paralysis is marked, and, as it has been pointed out by Mills,[8] it is greater in the distal part of the extremity. The lower limb is never so much affected as the upper limb. In the majority of cases sensory changes were found, this agreeing with other observers. In quite a large number of my cases considerable atrophy was also observed on the so-called sound side.

Charcot[21] in 1874 recorded his classic case of atrophy in hemiplegia, where microscopically secondary degeneration and atrophy of the cells of the anterior horns of the spinal cord was found. Since then his observation has been confirmed by a number of investigators. This has not been accepted, however, as an explanation for the atrophy, because later methods have failed to show atrophy of the cells of the anterior horn.

Borgherini,[22] Quincke[23] and Eisenlohr[24] believe that the atrophy in hemiplegia is due to an alteration of the trophic centers in the brain, these centers being situated either in the cortex or near the optic thalamus.

Darkschewitsch[25] and later Gilles de la Tourette[26] believed that the arthropathies which are so common in hemiplegia were the sole cause of the atrophy.

Steiner[27] thinks that there must be a congenital predisposition to disease in the cells of the anterior horn, for, he says, there is not atrophy nor alterations in the cells of the anterior horn in every case.

Roth and Muratow[28] believed that a destruction of the vasomotor tracts caused a disturbance of the blood supply to the muscles, thereby interfering with the there were the characteristic changes of locomotor ataxia. His pain sense was greatly diminished in both legs; he confused heat and cold; and deep pressure was not always recognized. Moreover, he complained of a pronounced pressure sensation over his bladder, and of intense lightning-like pains in his limbs. There was incontinence of urine and he was very constipated. The Argyll-Robertson pupil was present and the discs were gray. The heart and lungs were not conspicuously diseased, and the examination of the urine was negative.

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[17] Kahler and Pick: Vierteljahrschrift f. Praktisch. Heilkunde, Prag., 1879.

[18] Bonhoeffer: Monatschr. f. Psych. and Neurolog., vol. i, No. 1.

[19] Marinesco: Semaine Méd., Nov. 23, 1898.

[20] Steinert: Deutsch. Zeitschr. f. Nervenh., vol. xxiv, 1903.

[21] Charcot: Leç. sur les localisations, Oeuvres compl., vol. iv.

[22] Borgherini: Arch. f. klin. Med., vol. lxv, Nos. 5, 6.

[23] Quincke: Arch. f. klin. Med., vol. xiii, p. 402, 1858.

[24] Eisenlohr: Neurolog. Centralbl., 1891.

[25] Darkschewitsch: Neurolog. Centralbl., 1891.

[26] Gilles de la Tourette: Soc. Méd. des Hôpitaux, 9, 4, 1897; ref. in Semaine Méd., 1897, p. 130.

[27] Steiner: Deutsch. Zeitschr. f. Nervenh., vol. iii, p. 290.

[28] Roth and Muratow: Ref. Archiv. de Neurologie, p. 300, 1891.

The symptom which makes the case interesting and unusual was the presence of a fine rhythmical tremor of both hands and arms. The pill-rolling position of the fingers was well illustrated. Voluntary effort temporarily quieted this movement, after which it became more intense. It was absent during sleep and was helped by rest. After muscular effort in one hand the tremor was first quieted and then increased. There were no other symptoms of paralysis agitans. The mask-like face was absent, as well as the stiffness and contractures. The patient died from apoplexy.

Autopsy.—The autopsy revealed the presence of a large hemorrhage into the right lateral ventricle. The spinal cord, brain, peripheral nerves, muscles and ganglia were removed and hardened in formalin for study. The cortex, stained by the Weigert method and by hematoxylin and acid fuchsin, showed no pathologic change. In the pons, the fibers of the pyramidal tract were less distinct than in the lemniscus, which, however, may not be of much importance. The posterior columns were intensely degenerated throughout the length of the cord. In the thoracic and lumbar regions the degeneration was almost complete. At the sixth cervical segment the degeneration was still intense, but the number of healthy fibers was greater than in the thoracic regions. The posterior roots were intensely degenerated at all levels, while the anterior roots were intact. In the lumbar region the cells in the anterior horns showed distinct change, and this was also true—though to a less degree—in the cervical region. The nucleus of the nerve cell was much swollen, and the cells had lost their dendrites. The columns of Clark were well preserved. In one spinal ganglion there was some round-celled infiltration, but apparently no change in the cell. The other tracts of the spinal cord appeared to be intact.

I was unable to find any of the changes described by Dana in his case of paralysis agitans reported in 1899, except in the cells of the anterior horns in which the dendrites had disappeared, and the nuclei were swollen and displaced. In Dana's case there was fatty degeneration of the muscle, but I was unable to find this in my case.

The pathologic findings in this case are what one would expect to find in a fairly well-advanced case of tabes, and I do not feel justified in claiming that any part of the lesion present accounted for the presence of the tremor. I can not even say that the arterial change was sufficiently advanced to warrant any comparison with those cases of paralysis agitans in which it has been claimed that lesions resembling those of old age were found. But the pathology of paralysis agitans is still a matter of much doubt.

I was unable to find in my case lesions resembling those described by Schifferdecker, who found degeneration of the muscle spindles. The case that I have just described is possibly one of tabes associated with paralysis agitans.

1732 Pine Street.

Ten Thousand Photographs a Second.—Photographs taken in one-ten-thousandth part of a second are an achievement of the Institute for Technico-scientific Investigations in Neubablesberg, near Berlin. The destruction of bone by a modern small-bore bullet is shown by a series of photographs taken during the progress of the bullet.

HAVE DRUG ADDICTIONS A PATHOLOGIC BASIS?*

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In studying the pathology of drug addiction, it seems to me we have a threefold problem to solve. First, there is the hereditary abnormal aspect—the psycho-cellular pathology; second, the acquired abnormal conditions of the individual, which lead to the use of drug stimulants—the pseudo-pathology; and, third, the effect on the system of the particular drug used—the true pathology of the addiction.

PSYCHO-CELLULAR PATHOLOGY.

I am perfectly well aware that good authorities deny the influence of heredity among drug habitués, but I do not believe that this ground can well be maintained. First of all, it is a matter of record in the study of the histories of a large percentage of habitués of all kinds, that we find taints of varying degree among the ancestors of these individuals. It is a matter of very common occurrence to learn that either one or both parents, or some immediate ancestor, had been the victim of chronic nervous or mental affections, or had been addicted to the habitual use of alcohol, morphin or some other narcotic. When we consider the especial meaning of heredity, it should become apparent that the influence on the individuality and innate characteristics of the nerve cells of the offspring should be distinct.

In all probability, in the light of modern scientific research, we must admit that there is no such thing as hereditary disease, but it is equally certain that the conditions, characteristics and environments of the parent cell may be conveyed to the fetal cell to a disproportionate degree. True heredity must reach back to the very initial fertilization of the male and female cell. It must exist in the primary conception of fertilization. The particular development of this individual fertilizing cell undoubtedly modifies either in the one or the other direction, the manifestations which may be, at the beginning, inherent in this cell. After fetal life, conditions of environment and education, and the development of associations, further serve to modify for good or for evil the inherent characteristics of the primal cell. On this basis of reasoning, it seems to me that it would be impossible to conceive of malignant disease as existent in the primal fertilization, else would the ovum never develop into maturity. This would not necessarily obtain where we were dealing merely with tendencies of the parent cell, which might later develop through circumstance or environment into a nervous diathesis, resulting finally in a state of atavism. It is a well-known fact that the progeny of chronic invalids, of epileptics or of alcoholists, and mental and moral wrecks, develop the tendencies of ancestry to an augmented degree. The annals of criminology, as well as of the great charitable institutions of the world, reveal this to a remarkable degree. It is my belief that the same thing can be demonstrated in the peculiarities of the offspring of those addicted to the inordinate use of the various drugs.

We will all of us grant without question, I believe, the effects on the mental and moral sphere of the progeny of drug habitués; yet the mental and moral determination of these cells must be dependent on the healthy organic conditions of these cells, on their ability to exhibit the normal characteristics of brain cells, especially as regards their motility—that is, their power to alternataely become active and to fall into repose.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association at the Fifty-fifth Annual Session, June, 1904.

In the histories of those drug habitués who take up the, so to speak, inherent tendency to the use of the drug, it is remarkable to find the constantly recurring fact that either one or both parents or immediate relatives were also drug users.

PSEUDOPATHOLOGY.

The occasional causes for the acquirement of drug habits are too numerous to classify, but, taken as a whole, they may be subdivided into, first, the use of drugs purely as a stimulant; and, second, their use to efface some physical or mental distress, whether this be in the nature of pain, worry, grief or shock. Ultimately, the main factor in the causation of all drug habits, whether they be based on hereditary influences, on physical or mental weakness, or on physical or mental pain, is always the same, namely, the weakness of the nerve cell and the lack of vital force, which make the individual powerless to combat the strenuousness of existence. In the one or the other direction, the victim seeks to fortify his failing mental or physical power through the aid of a stimulant.

Unless the individual be burdened by extremely strong hereditary taints, or be the subject of innate, vicious moral principles and of the lowest and lower grades of intellectuality, there is usually some element of physical weakness in play, which he endeavors to overcome by artificial means. A study of the individual histories of such persons will almost invariably show that there has been some definite cause which has brought about a physical incapacity to deal with the problems confronting him. It is not at all unusual to find that a previous illness has resulted in bodily prostration, not infrequently associated with a greater or less degree of insomnia, to overcome which the patient has had recourse to alcohol in some form to sustain the physical vigor, and to opium in some form to bring on sleep. It is almost as frequently true that mental or psychic pain has been the source of the drug addiction.

In this connection, it is but just to say that members of our own profession have often been derelict in their attitude toward their patients, in that they themselves have thoughtlessly prescribed stimulants of the alcoholic variety and used narcotics of the morphin variety in a careless manner, and in individuals whose resisting power was so low that they readily became the victims of a habit which had been found to bring such material relief. I take this occasion to condemn the practice, wherever it may exist, of using opium to induce sleep. Opium and its derivatives should be used only for the definite purpose of relieving intense pain, and then only as a last resort and under circumstances which warrant the physician in the belief that his patient will not become addicted to its use.

To the ever-increasing army of alcoholics and drug users, men and women of the higher social strata are bringing a vast contingent, certainly as large, if not even greater, than the total number of recruits from the lower classes. The reason for this is not hard to find, when we consider for a moment the vast amount of intellectual and vital force necessary to keep up with the advance and demands of civilization. While it is equally true of lawyers, clergymen, and social idlers, perhaps the best example and the one which appeals most to us, is that of the physician who himself becomes a drug habitué. Unfortunately, a greater and greater number among our profession are seeking assistance and solace in that direction. We are especially unfortunate in that our knowledge of medicine and of the various drugs, and the readiness with which we find them constantly at hand, make the physician the easiest victim of all.

The physician, with a large amount of work and worry, with the ceaseless mental strain, often associated with physical hardships and loss of sleep through the demands of his professional duty, who misses this week one night of sleep and the next week two or three, feels that he needs something to stimulate and keep him in professional harness. He says to himself that he knows all about the drug he is using, that he knows its influence, that he knows its effects and its side effects, that he can stop when the latter show themselves; but it is for all the world like getting on a toboggan slide and determining to step off when you are half way or three-fourths down the course. It is a very easy thing to determine to do, but an extremely hard one to accomplish. It has always seemed strange to me that physicians who need such stimulants do not seek the safe refuge of strychnia, instead of the dangerous solace of opium and alcohol.

TRUE PATHOLOGY.

In considering the third problem before us, namely, the effects on the tissues of the system as a whole, and on various organs, notably the central nervous system in particular, we have a peculiar difficulty to overcome.

It must be remembered that most users of drugs have been addicted to the habit for longer or shorter periods of time, during which processes other than those induced by the drug used may have concurrently been in play. To arrive at the true pathology of any addiction, therefore, it would be necessary to exclude all factors other than that of the drug employed. Unfortunately for the solution of this particular problem, few persons, relatively speaking, die from the effects of drugs used in habitual wise. Intercurrent diseases usually bring on death. In acute poisoning, as in cases of suicide, the effect is so rapid on the vital centers that cellular changes have had no opportunity to occur, and in those cases rescued by immediate efforts, presumably few, if any, develop; at least, we are unable to study them.

We must, therefore, confine our inquiry into such pathologic conditions as may be found in individuals who have been habitués for periods of time, and here again we are confronted with a universal difficulty, for the ultimate effects on chronic users of the common drugs, like alcohol and opium, is that the entire system becomes highly acid. This really in itself constitutes a true pathology, and, in my opinion, it is the true pathologic basis. Just in this feature, however, we encounter another problem. We know that acidity of the organism, if that state exist through a space of time, in itself induces cellular changes within the various organs. So far as the minute and even the gross alterations of tissues are concerned, these are very similar in all conditions of an acid character, no matter what particular factor may have produced the hyperacidity. This is as true of the use of opium as of alcohol, the effects of which have been well studied and are clearly understood.

It has been claimed that the pathology of chronic morphinism differs materially from that of chronic alcoholism. On this ground it has been claimed that the effect on the offspring of morphin habitués is in no wise similar to that of the effect on the offspring of chronic alcoholics. To this doctrine I am absolutely opposed. If it be granted, as it undoubtedly will be, that addiction to any drug through a long period of time brings with it a deterioration of cellular activity in the higher nerve centers of the user, then we must also admit that the character of the fetal cell would be determined in analogous wise to that exhibited by the cellular deterioration in other affections. This is especially manifest when we consider the development of the ovum in utero of a mother whose system is impregnated by the physiologic effect of opium. Examples of this malignant and characteristic effect have repeatedly been found in newborn infants of mothers who, during the period of gestation, had been using morphin, either alone or in combination with other drugs, constantly. Such infants, immediately after birth, differ from ordinarily healthy children in that they are very apt to be inordinately drowsy, refuse to nurse, and have been known to sleep steadily for twenty-four hours. After the period of somnolence, the stupor disappears and these infants show excessive irritability, have colic pains, and are liable to become very cyanotic. These are the so-called "blue" children (Happel). The cyanosis is probably due to a lack of closure of the ductus arteriosus and foramen ovale in the heart. The administration of opium in those instances where the development of the child has not been irreparably arrested, promptly relieves not only the irritability and the colic-like pains, but also the cyanosis, and, moreover, the opium must be administered constantly and the child must be weaned away from it, in the same way as in adult narcotism.

It must be understood that the foramen ovale is never closed until after the birth of the child, that it is the very last remnant of fetal existence which remains to be completed. If so malignant an organic defect can result from habitual use of morphin, then I cannot conceive of any valid ground on which to dispute the effect on nerve cells in the brain, notably in the presence of the evidence which is manifest in the relief of the symptoms through the administration of opium in any of its forms.

In many instances, we are dealing with the finest, most minute details of the anatomic and physiologic structures of the body. The effects of alcoholism in this respect are well understood. We know that alcohol, used in constant and varying quantities, exercises an extremely deleterious influence on the vascular system throughout its entirety. Secondarily, we know that it extends its pathological effect to the various cellular tissues of the body, notably that of the nervous system. I am referring here especially to the individual who is denominated a "steady drinker," the man who always drinks and who prides himself on the fact that he never becomes intoxicated. It is just this man in whom the effects of the stimulant are most manifest. The occasional or periodic drinker—unless these occasions become so frequent as practically to form a continuity—comes to little or no grief, but the steady drinker is the one in whom the delicate regulatory mechanism of the vascular system becomes early impaired. From this point onward, the pathologic process is constant and destructive, and ends in the hardening of the blood vessels, which predisposes to tissue inanition and faulty metabolism. In consequence, we note the general disturbance of the emunctories, with disease of the kidneys, liver and the other organs of the body. In the nervous system, the effect is especially bad. Here we note not only vascular changes with degeneration of the blood vessel walls, but we have characteristic cellular changes in the brain; disarrangement of the chromophyl-granules, with distortion and dislocation of the nuclei and nucleoli, and vacuolization of the cells.

If the process does not go too far, we find in such cases manifestations of the disturbance of the function of the nerve cell, with a loss of power for activity and repose, which is indicated by a general neurasthenia and cerebrasthenia. If, however, the process passes beyond this point, which I should designate that of "recoverability," then we have exhibited the paralysis of power of the cells in whatever field of function they may represent.

What has been said of the pathologic effect of alcohol is, I believe, equally true, though probably in far less degree, of other drugs used to excess. While many good authorities contend that this is not the case and that morphinism and its sister vices are purely diseases of the moral and mental sphere, it seems to me that they forget the essential power of motility in the brain cells. It seems to me that it makes no difference whether we are dealing with a brain cell of motor function, or moral function, or intellectual function, the same principles must hold good in any or all of these cases. I am an adherent of the doctrine of the motility of the nerve cell, which in its normal condition has the power to change somewhat its form by withdrawing its dendritic processes from contact with other processes, but in nowise has the power of changing its concrete location. If, therefore, for any cause this loss of motility in the nerve cell, which is a structural thing, becomes impaired beyond the power of recovery, then we have a pathologic basis of a structural nature in the cell itself. I believe, therefore, that not only chronic alcoholism, but also chronic drug addictions of every kind have a physical basis. We must not lose sight of the fact that structural changes of the cell, heretofore beyond our limits of vision, are now known to be possible of study by means of intense lateral illumination, which has increased the power of our microscopes many hundred-fold.

In the near future we may justly hope to acquire definite knowledge of pathologic cellular and other changes, of which at the present time we have no adequate conception.

Just as the fundamental factor for the necessity of all stimulation by drugs lies in the innate loss of force within the nerve cells, so the universal ultimate pathologic effect of almost all drugs used to excess is to render the entire organism highly acid. Certainly this is true of alcohol and of opium, the most common addictions. Whether or not many of the pathologic tissue changes do not depend directly on the hyperacidity of the system remains as yet a matter of doubt and study.

While this is undoubtedly true, it seems to me that we may even now assume that drug addictions have a pathologic basis, expressed as follows:

1. By the hyperacidity of the system.
2. By minute structural changes within the cerebral cells in particular, and probably also alterations in the vascular tissue.

In addition, we must admit that hereditary influences and the presence of faulty conditions—physical, mental and moral—play a most important *rôle* in the development of narcotic habits, but that, while they may have a pathology all their own, this must in nowise be considered an intrinsic feature of the true pathology of drug addiction itself.

The marrow is of different varieties, but usually, in the adult long bone, there is to be found the so-called yellow marrow, which is 96 per cent. fat, supported by connective tissue trabeculæ in which there is a large number of blood vessels. This fat exists in cells—that is, a mass of fat within a distinct cell membrane, and before the fat can enter the circulation this cell membrane must be broken and the liquid fat set free.

This rupture of the cell membrane is accomplished by the force of the traumatism. After fracture the broken ends or spiculæ of variable size may be forced into the marrow, so that at the same time that the vessels are torn the fat is liberated.

This fluid fat is taken up by the veins and carried to the right heart by the vena cava and thence to the lung by the pulmonary artery.

The entrance of the fat into the circulation must take place comparatively soon after the injury, for the openings in the vessels are soon plugged by thrombi which to a large extent prevent the further admission of fat.

Lateral or incomplete tears of the vessel walls will, of course, become occluded more slowly than will complete ruptures, and in a large number of fractures such a condition is frequently found. It has been claimed that the fat may enter the blood stream directly through the venous wall, but this point has not yet been perfectly worked out.

Another and uncommon route by which the fat may gain entrance to the circulation is by way of the lymphatics. That this substance might be taken up by injured lymphatic vessels has long been known, but it has been demonstrated that absorption may take place from the serous sacs or even from the connective tissue spaces.

The transit through the lymphatic glands is slow and is thought by some to exert an emulsifying action which makes the fat inert and unable to form an embolus. This has been contradicted by Weiner[22] in his very convincing experiments.

TRANSIT THROUGH THE LUNGS.

The foreign body, the fat, enters the lung with the blood from the right heart by means of the pulmonary artery and proceeds with the blood through the branches, which gradually decrease in size and multiply in number till the network of capillaries surrounding the air sacs is reached.

It has been claimed that the forceful impact of the globules of oil against the walls of the vessels, especially at the numerous divisions, results in a breaking up of the drop into many smaller ones which are able to pass through the finer ramifications of the pulmonary artery

It is here, in the capillary network of the alveolar wall, that the progress of the embolus is first interfered with. Owing to the diminished caliber of the vessel, the fat meets with difficulty in effecting a passage, and as a result there is interference with the circulation of the blood in this particular region, hyperemia behind and anemia in front of the obstruction, with sometimes the formation of typical hemorrhagic infarcts, a condition of edema, and with it all an imperfect and unsatisfactory aeration of the blood.

The importance of this pulmonary obstruction has been variously estimated. Scriba[23] has shown that sufficient fat to seriously obstruct the circulation of the lung, experimentally, at least, is practically an impossible result of any accident that may give rise to fat embolism. He considers the cause of the disturbance in the lung to be due to interference with the respiratory centers of the central nervous system.

Practically always some part of this fat does pass through the capillaries of the lung, either at first without difficulty, or later, after the heart's action has been augmented and made itself felt. These droplets of oil easily gain entrance to the systemic circulation by way of the pulmonary vein, the left heart and the aorta.

FAT IN THE SYSTEMIC CIRCULATION.

The particles of fat pass along with the blood stream, giving rise to no symptoms till they once more meet with resistance to their farther passage in the capillaries. But even with such obstruction of the ordinary capillary there will be little disturbance or appreciable symptoms because of the profuse collateral circulation. It is only after the obliteration of the lumen, together with a shutting off of a terminal artery, that serious manifestations are noted. These arteries, called "terminal" by Cohnheim, do not have a collateral circulation, the branches of such an artery communicate only with the branches of a corresponding vein.

Typical arteries of this character are to be found in the kidney and the spleen; atypical ones—that is, arteries in which there is a very small collateral circulation—are found in the brain, spinal cord, lung, stomach and intestine.

When embolism, by fat or any other substance, of these arteries occurs there follows infarction and a disturbance of function of that part of the organ which is deprived of its circulation. The importance of this loss of function depends on the organ involved; for instance, all things being equal, a larger area of the lung or kidney could be interfered with than could the same area of the brain or medulla.

The lung, the brain and the kidney are most often found to be the seat of fat embolism. The frequency with which the brain is involved possibly may be explained by the close relationship to the heart or the more direct flow of the blood from the aorta into the carotids.

ETIOLOGY.

Fracture is not the only cause of fat embolism, although in practically all fractures there is fat embolism to a greater or less extent. In 43 cases collected by Busch,[10] 24 were due to fracture; in 140 reviewed by Sinclair,[20] 84 followed fracture; Scriba[23] found 177 cases, 93 of which occurred after fracture; of 12 cases reported by Moullin,[26] fracture was the cause in 7; in 10 cases of death following injury, examined by Saundby and Barling,[27] fat embolism was found 8 times, in each instance following severe injury to bone; and in 17 cases of fracture Carrara[33] found fat embolism in 76 per cent. The fracture may be either simple or compound; other conditions being equal, it is thought to occur more frequently after a simple than after a compound fracture because of a lack of drainage, and, therefore, an increase in the tension at the site of the injury.

With comminution, the symptoms of fat embolism occur more frequently than after those in which there is no comminution, because of the greater damage to the marrow of the bone and to the opening of additional vessels.

Rough handling of the fractured limb, as in transportation, because of the additional injury to the fat cells in the marrow, is prone to favor the occurrence of fat embolism.

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[33] Carrara: *Freidreich's Blatter, July, 1893.*

Extension into a joint is also conducive to the occurrence of these symptoms, as the fat may be absorbed by the serous surfaces.

Fat embolism follows fracture of the extremities more often than of the bones of other parts of the body, but it may follow the fracture of any bone, as in the case cited by Moullin, in which the lung was found filled with fat in a case that died almost instantly after fracture of the cervical vertebra. The long bones are filled with yellow marrow which is almost entirely fat, while most of the other bones, such as the vertebra, sternum, ribs, etc., have comparatively little fat in the composition of their marrow. It has been found as a complication of fracture of the lower extremity more often than of like injury to the upper extremity, and more frequently after a break of the femur than of the bones of the leg.

It is a complication that occurs in the strong, robust, middle-aged patients, and in males more frequently than in females, for the very obvious reason that the former are more exposed to severe physical injury. In the weak, emaciated or exhausted it is less likely to occur, as the fat in the marrow of such individuals is not excessive.

Minich[34] has pointed out that the fat in the marrow of children is very small in amount, and that fat embolism is rarely seen in children A similar condition and a similar immunity, though not quite so certain, is found in the aged.

Ribbert,[35] in a recent communication, claims and experimentally proves that this phenomena is caused by any jar or severe concussion of the skeleton, and that fractures or the forcible reduction of an ankylosis in respect to fat embolism is merely an indication that the bones of the body have received a severe jar.

Hahn,[13] very early in the history of the subject, made experiments in which he caused fat embolism by fractures of varying extent and severity, but after the simple removal of a V-shaped piece of the shaft of the femur, without opening into the fat-containing medullary canal, he was unable to detect any evidence of fat embolism.

OTHER CONDITIONS CAUSING FAT EMBOLISM.

Among the conditions other than fracture that may be followed by symptoms of fat embolism are the following: 1, Orthopedic operations; 2, open operations on bones or joints; 3, surgical operations on structures other than bone; 4, inflammation of bone or periosteum; 5, laceration, bruising or suppuration of the fat-containing soft parts, extensive burns or scaldings; 6, rupture of fatty liver; 7, causes arising within the circulation, as: (*a*) Atheromatous changes of the vascular wall; (*b*) fatty changes of thrombi, of various origin and location; (*c*) diabetes, icterus.

Orthopedic Operations. Cases in Which the Bone is Not Fractured.—Colley,[30] in 1893, was one of the first to attract attention to this phase of the subject. In 1900 Payr[32] was able to collect 9 fatal cases, and since that time additional instances have been reported.

Open Operations on Bones or Joints.—Paul Vogt[36] was, perhaps, the first to report the occurrence of fat embolism after resection of the knee joint; since then, however, it has been noted by many as a sequel to resections and operations on bone.

Surgical Operations on Structures Other Than Bone.—Roswell Park.[29] in 1884, mentioned a case of sudden inexplicable death, after amputation of the breast in a very fleshy woman, and believes that this death was due to fat embolism. It has also been suggested that some of the so-called postoperative pneumonias may be explained by the supposition that the disturbance in the lung was caused by fatty emboli.

Inflammation of Bone or Periosteum.—In the early investigations, such as those of Wagner,[6] Busch[10] and Flournoy,[8] fat embolism was found in varying proportions in connection with diseases of the bone and periosteum. Niederstadt,[37] in 1869, was the first to consider this relationship in length.

Laceration, Bruising or Suppuration.—Bailey,[17] in 1877, and Fitz,[38] in 1878, called attention to the possibility of fat embolism occurring without injury to the bone. Flournoy,[8] in the following year, mentioned an obscure case of this character, and in 1879, Jolly[21] considers the question at length, and especially in relation to the acutely insane. It may be mentioned, in this connection, that Hahn,[13] in his experiments, could not produce fat embolism by breaking up the subcutaneous fat, or that of the mesentery. In 13 cases of death due to burns and scalds, Carrara[33] found fat embolism in 44 per cent.

Rupture of Fatty Liver.—This as a cause of fatty embolism was noted by Hamilton[16] in 1877; a somewhat similar case was reported by Engel[39] in 1901.

Causes Arising Within the Circulation.—Another class of conditions may give rise to fat embolism, but they differ from those above, in that their origin is within the lumen of the blood vessels.

Atheromatous Changes of the Vascular Wall.—This condition was the cause given to explain the presence of fat in the capillaries in perhaps the first clinical observation of this condition, Müller,[4] 1860.

Fatty changes of thrombi: The fatty degeneration of thrombi is apparently a condition that does not often give rise to serious symptoms of fat embolism.

The thrombi may lie in various situations, and may be due to various causes, such as thrombosis at the site of fracture or other injury after operation or pathologic changes or in the uterus after delivery.

Virchow[40] has called attention to the relationship between fat embolism and puerperal eclampsia. All of these may undergo fatty change and give rise to the presence of fat in the blood, but it is usually in such small quantity that it rarely gives rise to noticeable symptoms.

Diabetes, grave icterus and other conditions: These sometimes are accompanied by lipemia, but the occurrence of embolism is comparatively rare.

It has been suggested that the terminal coma of diabetes is due to fat embolism of the brain. The first case of this character was reported by Saunders and Hamilton[41] in 1879, and in 1881 Saundby and Barling[27] consider the subject, and conclude that the finding of fat embolism of the brain in these cases is not constant, and that the question is still an unsettled one.

E. Payr[42] has called especial attention to the presence of the status lymphaticus in his fatal cases following orthopedic manipulations. He points out that with such a condition there is greater danger of the occurrence of embolism, and when once instituted the prognosis is much more grave. The same is undoubtthe large trunks were obliterated, death might ensue very rapidly, and if the smaller branches, it might be delayed for an indefinite time. The interference with the normal heart action in fat embolism is evidently due to capillary embolism, be it coronary or pulmonary, or occurring in the capillaries of the brain or cord.

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[34] Minich: La Sperimentale, March and April, 1882, vol. xlix, pp. 253, 270, 337, 359.

[35] Ribbert: Deut. med. Woch., June 28, 1900.

[36] Vogt: Cent. f. Chir., 1883, No. 10, p. 67.

[37] Neiderstadt: Dissert. Gottingen, 1869.

[38] Fitz: Boston Med. and Surg. Jour., 1878.

[39] Engel: Muen. med. Woch., 1901, No. 26.

[40] Virchow: Deut. med. Woch., July 15, 1886, p. 448.

[41] Saunders and Hamilton: Edin. Med .Jour., 1879, p. 47.

[42] Payr: Muen. med. Woch., July 12, 1898.

TEMPERATURE.

The temperature is, perhaps, the most perplexing and unsettled symptom of fat embolism. It is notoriously erratic and unreliable, and opinion is divided as to whether it is more often increased or decreased.

In most of the animal experiments with fat embolism, such as those of Czerny,[11] Hahn,[13] Scriba[23] and others, the temperature has been depressed.

Clinically, the temperature frequently has been found to be elevated in cases of this character. It is true there *are often complications present which in measure might* account for the hyperpyrexia. Wagner,[9] Busch,[10] Bergmann,[7] Stricker, Albert and Bilroth and many others believe that fat embolism is always accompanied by an elevation of the temperature.

Schwick, C. O. Webbe and Scriba,[23] on the other hand, emphasized a lowering of the temperature as a symptom of fat embolism, and Senn says:[49] "A high temperature always excludes fat embolism as the sole or principal source of danger and should always remind the surgeon of the necessity for searching for other complications that are responsible for the febrile disturbance." The increase of temperature in such cases is explained as being due to other causes, such as sepsis or ferment intoxication.

Roswell Park,[29] on the other hand, says, and is, perhaps, the more nearly accurate: "The temperature *range is by no means constant; usually it is at first below* the normal, and may in some cases remain so; in other cases it fluctuates from hour to hour, and may vary from the normal, by wide limits, either above or below. In other words, its range is atypical." Welch[50] likewise asserts that the temperature may either fall or rise.

Those who claim that the temperature is always normal or subnormal in cases of simple fat embolism do not present conclusive reasons why this should be the case.

It has been suggested that, possibly, this lowering of the temperature might be due to the deficient oxidation of the blood following the blocking of numerous capillaries of the lung. The intravenous injection of inert sterile foreign matter, such as flour, charcoal and other substances, has been found to be followed by an increase of temperature.

Schultze,[51] in 1897, reports a not uncommon case in which the subcutaneous injection of mercury was followed by a great dyspnea, with high fever but no pulmonary dullness. The attack was soon over and there were no bad results. Dimisch[52] found about 30 per cent. of subcutaneous fractures were accompanied by fever. It has been said that the only way to explain the occurrence of a temperature after the injection of foreign aseptic material is that this foreign matter destroys the corpuscles of the blood with a consequent liberation of fibrin ferment, which is capable of causing a rise in the temperature.

The early work of Magendie[1] and others on the viscosity of the blood has shown that after shaking a mixture of freshly drawn blood and oil there resulted a breaking up of the red cells. Other experimenters have failed to note any marked change in the composition or the character of the blood after the addition of oil to the circulation in the body, this discrepancy being explained on the supposition that the agitation, and not the addition of the oil, was the cause of the alteration in the red cells. If the injection of sterile substances other than oil is followed by a temperature it would seem reasonable that the injection of oil might act in the same manner.

The frequent association of fat embolism and sepsis is readily admitted, as is also the difficulty at times in satisfactorily separating the two conditions. In many cases of fat embolism with elevated temperature sepsis may be practically excluded, and it is difficult to understand the cause of the temperature if it is not due to the *emboli.*

Scriba[23] considers a rise of temperature in these cases to be due to sepsis, and even looks on the condition of fat embolism as advantageous in preventing or retarding the entrance of this sepsis into the general circulation, by obstructing the capillaries. Again, the subnormal temperature in simple fat embolism may be due to an interference with the centers of the nervous system *which regulate the production and dissipation of the* body heat. This seems to be the most rational explanation, but if such were the real conditions it would seem that occasionally, at least, the interference with the blood supply of these centers by embolism might cause an increase instead of a lowering of the temperature.

Hamig[53] in all of his five cases found a rise of temperature similar to that which occurs in aseptic fever, and in explanation gives as a cause some *alteration of* the heat centers.

As showing that clinically, in fat embolism, the temperature may be elevated, we find that authors report as follows:

Egli Sinclair[30] stated in the symptoms, "the temperature is high." Smirnoff[54] likewise considers high fever to be a symptom. Skirving[25] found a temperature of from 100 to 104. and after death, 105. Czerny,[11] 103.4; Fenger,[24] 101.3; Southam,[55] 101.2, 103, 105; Southam,[55] 100.4, 100, 98.6; Lowe,[56] 101.8; Bard,[57] 102; Zwick,[58] 99.5; Svetchnikoff,[59] temperature rose; Bonine and Belknap,[60] 103; Flournoy,[8] 104, 102.9, 102; Minich,[31] 104, 99.6, 98.6; Whitney,[61] 99, 101.5, 100, 101,98; Preidelsberger,[62] 101; De Groube,[63] temperature dropped just before death; Colley,[30] *101.3, 106; Colley, 100.5, 102.5, 101*; Hamig,[53] 99, 101, *103.5, 104.5*; 101.8, 104, *after death* 109; 101.8, 105, 106; 101.6, 104, 104; 102, 104.5, after death 106; Pomatti, 99.6, 103.6, 105.8; Demisch,[52] 104.3; Ribbert,[35] 98.6, 100, 100; 98.2, 102.3, 103.8, 103.2; 86, 103.4, 103.6, 103.8; Bailey,[17] 104, 103; Bergmann,[64] 103.

In these *29 cases fat embolism occurred* 18 times after simple fracture, 6 times after compound, and once after a fracture the variety of which was not mentioned. It occurred after *orthopedic manipulations* three times and once after a punctured wound of the soft parts of the leg.

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49. Senn: Principles of Surgery. 1890: Practical Surgery. 1901. p. 347.
50. Welch: Allbutt System of Medicine. 1899. vol. vii. p. 228.
51. Schultze: Cent. f. Chir., Aug. 21, 1897.
52. Dimisch: Cent. f. Chir., 1886. p. 182.
53. Hamig: Cent. f. Chir., No. 35, 1900.
54. Smirnoff: Chirurgia, July, 1903.
55. Southam: Lancet, May 3, 1902.
56. Lowe: Jour. Anat. and Phys., vol. xvi, Saundby and Barling.
57. Bard: Trans. Med. Soc. of California, 1891, p. 128.
58. Zwick: Deut. med. Woch., No. 32, Aug. 8, 1883, p. 469
59. Svetchnikoff: Medizinskiya Prob., June, October, 1899.
60. Bonine and Belknap: The Phys. and Surgeon, February, 1886.
61. Whitney: Boston Med. and Surg. Jour., 1892, No. 7, p. 159
62. Preidelsberger: Zeit. f. Heilkunde, vol. xxiv, 1903, No. 3
63. De Groube: Revue de Chir., 1895, vol. xv, p. 577.
64. Bergmann: Berl. klin. Woch., Aug. 18, 1873

While searching for these cases of fat embolism in which there was a temperature, there was noted reports of eight cases in which the temperature was normal or subnormal.

With my two cases, the temperature was, therefore, noted in 39 cases, and of these 31 were accompanied by a rise of temperature and 8 by a normal or subnormal temperature.

LOSS OR DIMINUTION OF SENSIBILITY OF THE SKIN AND REFLEXES.

The symptoms to be classed under this division are unquestionably to be explained as being due to interference with the central nervous system. They are in a great majority of fatal cases the terminal symptoms.

DIFFERENTIAL DIAGNOSIS.

In 1864 Flournoy[8] was the first to recognize this condition as a cause of death. Lucke was the first to make a diagnosis during life in a case of fracture of the leg in which there occurred acute interference with the respiration. Bergmann[64] made a diagnosis of this condition during the life of the patient in the same year, 1873.

In America, the first diagnosis was made by the late Christian Fenger[24] in 1879. Since then it has been recognized with increasing frequency, but is evidently still frequently overlooked or mistaken for some other condition. Among the conditions more likely to be confused with fat embolism may be mentioned: Shock, septicemia, pulmonary embolism and less commonly the effects of anesthetics, congestion of the lung or kidneys, cerebral hemorrhages, concussion of the brain, or atheroma of the coronary arteries.

The symptoms of shock will have practically disappeared by the time that those of fat embolism are beginning to make themselves manifest. In the rapidly fatal cases of shock after fractures it has been suggested that fat embolism in some cases may be an important element.

Septicemia is usually a later development than is fat embolism, but we have seen that a low temperature is neither a constant nor an established symptom of fat embolism. An irregular and at times a marked elevation of the temperature is to be noted.

The occurrence of shock, to which is added fat embolism, and on which is engrafted a sepsis, is not uncommon after a severe traumatism, and when it does exist it is a formidable combination to recognize and separate.

In this connection the case of Southam,[55] in 1880, is of interest. On the second day after compound fractures of both legs, followed by double amputation, the patient developed typical symptoms of fat embolism and the temperature went up to 105 F. Discoloration of the stumps, with a characteristic odor, showed that putrefactive changes had taken place. Microscopic examination of the lung showed fat embolism. In his mind the diagnosis lay between fat embolism of the lung and the acute form of septicemia, the "collapse with cyanosis" of Bilroth.

Embolism due to the dislodgement of a portion of a venous thrombus may resemble fat embolism very closely, but its onset is usually very sudden; on about the third week after the accident the symptoms are almost entirely pulmonary and cardiac, and the course is usually rapidly fatal. The time of these complications of fractures has been well emphasized by Dennis[65] in the following manner: Shock, 3 hours; fat embolism, 3 days; pulmonary embolism, 3 weeks.

In cases where an anesthetic has been administered the irritation of the lung and kidney may cause symptoms resembling those of fat embolism; also congestion of these organs from causes other than anesthetic or fat embolism sometimes may give rise to confusion, as may likewise the affections of the brain and heart mentioned above; usually, however, the symptom complex and a careful physical examination will clear up the cause of the condition.

Welch[60] considers the detection of fat emboli in the pulmonary vessels to be of medicolegal value in determining whether injuries have been inflicted before or after death.

PROGNOSIS.

The prognosis of fat embolism is most uncertain; perhaps the chief factor in this uncertainty is that its frequency is unknown. Baum, in 366 cases of fracture, found death due to fat embolism in 7 instances. Lucke,[64] in 232 fractures, found only one death due to this cause. Mumford, in 300 cases of compound fracture at the Massachusetts General Hospital, found three deaths due to fat embolism.

It undoubtedly occurs in a mild form, and, therefore, is not recognized, after a large proportion of fractures. The reason why this fat does not cause serious embolism of the lung in many cases is explained by Moullin[26] in the following manner: The globule of oil in the blood stream, by the force of the heart's action and impact against the vascular wall, especially at the dichotomous division, is broken up into very small droplets that are able to go through the pulmonary capillaries without causing obstruction.

The presence of the oil in the circulation has no deleterious effect on the constituents of the blood; its sole action is a mechanical one, in obstructing some of the finer capillaries of the periphery, and is finally removed from the circulation by the leucocytes, by phagocytosis, by passing into the perivascular structures and there being oxidized, or by the manner in which the largest part is eliminated, by the kidney.

Lipuria has been found to be an almost constant accompaniment of fractures, and operations on bones, but only rarely does it give rise to serious symptoms.

Fat embolism also escapes detection when it occurs in a severe type and is confused with shock, collapse, the effects of anesthetics or sepsis.

Flournoy[8] and von Recklinghausen searched for evidence of fat embolism in 250 consecutive autopsies, and found it more or less diffuse in 10 per cent. Carrara[33] examined 102 bodies and found fat embolism in 28. C. W. M. Moullin[26] found fatty emboli in 12 out of 14 consecutive postmortems, in which, with one possible exception, there was no suspicion of its existence during life. Saundby and Barling[27] examined 8 cases in which death followed injury to the bone, and found fat embolism in all.

The mortality rate is very indefinite, and, it might be said, unknown. Meeh,[46] in 1891, was able to collect 111 cases in which the death was attributed to fat embolism, and after an analysis of these cases he could only find 13 that, in his opinion, were not fatal because of some other complication. Flournoy[8] was able to collect 140 cases of fat embolism, 13 per cent. of which died because of this condition. In 300 cases of compound fracture at the Massachusetts General Hospital, from 1887 to 1895, Mumford found a mortality of 30, 10 per cent.

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[65] Dennis: Surgery.

Of these 30, 3 (10 per cent.) died because of fat embolism. Scriba[23] found, experimentally, that the result depended on the amount of fat, the force and rapidity with which it was introduced, and the proximity to the heart to the site of the injection.

TREATMENT.

The treatment of fat embolism is most unsatisfactory; in fact, it may be said that there is no treatment.

Prophylactic treatment should be instituted immediately after the injury has been received and will consist of careful handling of the limb, so as to do as little additional injury to the fat cells as possible. All of this is demanded by Nature because of the pain that results when these precautions are not carried out. But when the patient is unconscious, and no pain is felt, the same care should be exercised in moving or manipulating the limb. The proper approximation of the fragments and their immobility are, perhaps, the only effort that can be made to prevent the occurrence of fat embolism.

Many theories have been advanced as to the proper line of treatment, but, unfortunately, none are of great practical value. If a closed wound, drainage should be established, in the hope of relieving the tension, and so preventing the further absorption of the fat. The proximal ligation of the veins, and even phlebotomy, have been recommended, with about the same object in view.

Attempts have been made to emulsify the fat in the blood by the injection of a weak solution of sodium bicarbonate. Normal salt solution has been injected with the object of diluting the blood, and ether has been injected for the purpose of absorbing the fat. Oxygen is most certainly indicated for the carbonic acid poisoning. As the chief part of the fat is eliminated by the kidney, attention should be given to these organs. But perhaps the all-important element of the treatment is to watch the heart's action and keep it going by stimulants as long as possible. If the force of the heart can overcome the fatty capillary obstruction, then the outcome is much more favorable. First the fat must be forced through the pulmonary capillaries and then through the capillaries of the systemic circulation.

Therefore, it would seem that judicious heart stimulation is about the only treatment available for this condition at this time, as it is of numerous other conditions.

Case 1.—Compound comminuted fracture of left tibia and fibula. No medical attention for nine hours after accident; rough transportation. On the fifth day respiratory symptoms appeared, the temperature was high; on the sixth day sudden and marked fall of temperature and the onset of cerebral symptoms. Fat found in sputum and urine. Symptoms persisted for about five days, and then gradually disappeared; ultimate recovery.

Patient.—Mr. I. W., 33 years; Scandinavian, lumber man. Family, personal and previous histories negative.

Present History.—While engaged in moving timber at about 8 o'clock on the morning of Dec. 15, 1902, he slipped and a heavy log rolled over his left leg. He was thrown into the snow, and was unconscious for about an hour; he then regained consciousness and called for help, but it was not until five hours after the accident that he was found. In the meantime he had suffered extremely from the cold and believed that his foot was frozen. As there was no means of transportation other than horseback, his leg was crudely bound up with some sticks, and he got into the saddle, and, with a companion on each side, rode for two miles to the nearest railroad station. After a ride of 50 miles on the train he arrived at St. Vincent's Hospital at 5 o'clock in the afternoon, having received no medical attention of any description since his injury.

Examination.—Examination revealed a muscular, well-developed man, somewhat pale, but cool and collected. The clothing of the damaged limb, which had not been disturbed, was saturated with blood, the foot was strongly inverted, and there was a *false point of motion* and crepitus, with pain. After the removal of the clothing, the tibia was found to be broken at about the junction of the middle with the lower third, and the fibula about three inches higher. The skin covering the crest of the tibia at the site of the fracture was torn in a direction transverse to the long axis of the limb. About two inches of the upper fragment of the tibia protruded from this wound and rested on the skin of its lower lip.

Treatment.—After an ineffectual attempt to reduce this protruding end of the tibia, the inferior margin of the wound was incised parallel to the long axis, and the bone replaced. On digital examination there was found considerable clotted blood, and a large piece of the crest of the tibia. These were removed, the fragment of the tibia was entirely denuded of periosteum; it was two inches long, an inch wide and a quarter of an inch in thicknesss. A blunt forceps was now introduced through the soft parts and made to present on the posterior surface of the leg, and by means of a button-hole the forceps were passed through and tubular drainage effected. The wound was thoroughly irrigated and cleansed, the ends of the bones placed in apposition, an ample wet dressing applied and the leg put in lateral splints.

All of this was done without any anesthetic, either local or general.

Subsequent History.—On admission to the hospital the temperature was 99. The second day, in the evening, there was a slight rise of temperature to 100.2. On the third day there was no marked change in his condition, except that the temperature reached 102.6 and the pulse had slightly increased. On the fourth day the temperature became alarming, 103.4, but the pulse did not go above 118 and was full and strong. The dressings were changed and the wound examined, but no accumulation of pus could be found, nor was there any evidence of infection; the drainage tube was open. After the renewal of the dressings and free evacuation of the bowels the temperature dropped 2 degrees. Previously his nights had been fairly comfortable and he had been able to sleep as well as could be expected, but in the night between the fourth and fifth day he was unable to sleep, was very restless and seemed short of breath. During the fifth day he manifested signs of interference with respiration, complained of slight pain on both sides of the chest, dyspnea, slight cough with scanty blood-stained sputum; his face became cyanotic and the expression worried. He did not complain of pain in his leg. The temperature was again high. The dressings were removed and the wound once more inspected, but no evidence of any retention of pus or wound secretion. Physical examination of the heart and lungs was negative. He passed a very restless night. Early in the sixth day the pulse and temperature dropped, the temperature descending from 103.6 to 99.4 between 2 a. m. and 1 p. m. The dyspnea increased, and in the afternoon he sank into a sleep and could only with difficulty be aroused sufficiently to take nourishment or medicine. A very profuse bloody froth accumulated in his mouth, the breathing was irregular, there was marked pulsation of the jugulars, the pupils were contracted but responded to light, the reflexes were apparently normal, large moist râles, were heard over both lungs, but there was no dullness. For the first time fat was noticed in the frothy sputum, and an examination of the urine revealed the presence of fat in large globules.

The seventh day was quite similar, there being little if any change in the condition of the patient. He slept all of the time, but could be roused, and at times seemed quite rational; in answer to questions, he was always feeling "pretty good," and had no pain.

The eighth day was about the same as the two preceding days. Fat was no longer to be found in the sputum, which also seemed to be diminished, and the dyspnea seemed not so marked. The temperature was irregular.

During the ninth day all of the symptoms improved; he became wakeful and more rational, but had no recollection of the time since he had been hurt. From then on he gradually improved, and by the twelfth day he was about as well as could be expected.

The leg finally united after about eight months, during which time various procedures not germane to this subject were gone through with.

The ultimate result was a good union, with about an inch of shortening.

The appended chart of the time that the symptoms of fat embolism were prominent, may be of interest. (Chart 1.)

Case 2.—Compound fracture of left femur; did well for 15 days, then for one week had pulmonary symptoms of fat embolism, with lipuria and fat in the sputum and an inguinal phlebitis. Recovery. On the forty-third day after the receipt of his injury, after sitting up for the third time, he had a return of all the embolic symptoms, which persisted for about a week, terminating in recovery.

Patient.—Mr. E. J., 35 years, Scandinavian, miner. Family, personal and previous histories negative.

Present History.—While at work, slipped and fell, his left thigh being caught between a platform and a heavily loaded descending "cage." He was held, pinned in this manner, for some few minutes, before the cage was lifted and he could be taken out. He experienced great pain and was unable to stand or walk. He was removed as soon as possible to St. Vincent's Hospital, a distance of about four miles, over rough mountain roads.

Examination.—On admission, about two hours after the accident, pulse was good, the patient seemed in good general condition, and there was present no evidence of shock. Examination revealed crepitus and a false point of motion in the thigh at about the junction of the lower with the middle third. There was a marked deformity; the upper fragment was displaced forward and outward, causing shortening and eversion of the foot. There was a bruise of the soft parts on the internal aspect of the thigh; on the outer side of the thigh, and higher, there was a similar bruise, with a punctured wound about one-half inch in diameter. From this wound the blood was flowing, but in a moderate amount.

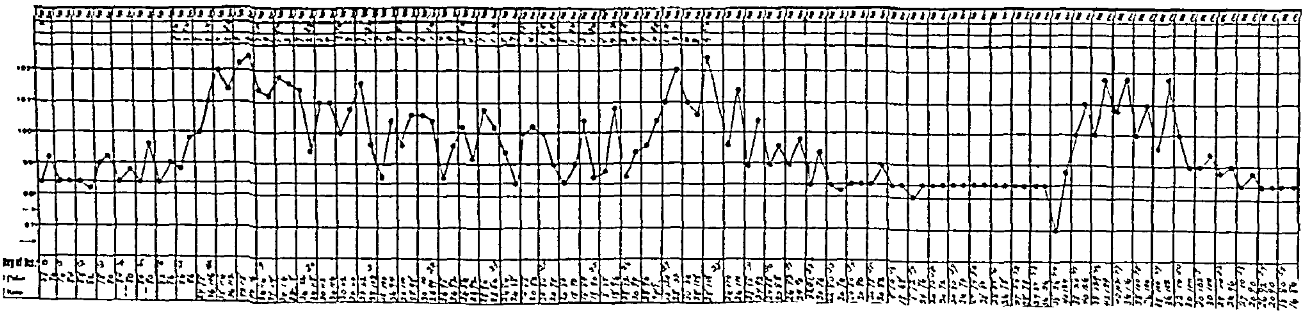

Chart 2.

Treatment.—The limb was cleansed, shaved and the wound swabbed out with carbolic acid, followed by alcohol. A wet dressing was applied, the limb put in splints, and the next day a Buck's extension applied.

Subsequent History.—The wound of the soft parts healed by first intention, and the bony union seemed to be progressing favorably. During the afternoon of the fifteenth day, the intervening days being practically normal, he complained of not feeling well, was short of breath, restless and uneasy. His temperature in the morning was normal and in the afternoon 99.6. At about midnight he began to cough and have a sharp pain on the left side under the shoulder blade. The next morning his temperature was normal, but it gradually crept up till on the eighteenth day it reached 102.6, after which it gradually declined. The cough and expectoration, containing blood and [illegible] with dyspnea, rapid and irregular action of the lungs and [illegible] anxiety and sleeplessness, all of [illegible] one week.

Physical examination of the chest during this time showed at first large, moist râles, with slight tympany; later there was evidence of consolidation over the base of each lung. Fat in the sputum persisted for two days, and then could be detected in small amounts for two more days. In the urine fat was detected every day for a week.

At no time did the patient have any marked manifestations *attributable to interference with the central nervous system.*

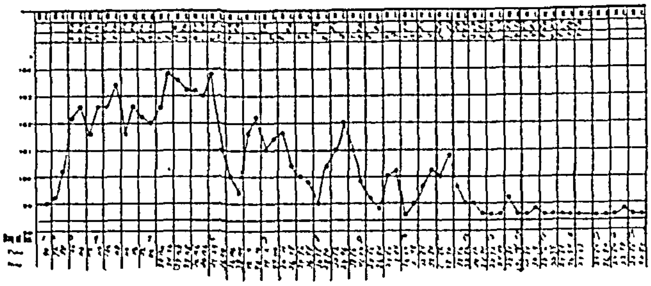

Chart 1.

He was extremely anxious, restless and apprehensive of a fatal termination, but these were the only symptoms that could possibly be considered as originating in the nerve centers.

On the day following the onset of these symptoms, the sixteenth, he complained of pain in the left groin; examination at this time revealed nothing, but the next morning there was a distinct swelling of the entire limb, more noticeable in the thigh than in the leg. The skin was slightly darker in color and a marked tenderness in the neighborhood of the saphenous opening. Under appropriate treatment the pain disappeared in a few days, but the swelling remained, diminishing slowly, for a number of months.

An irregular temperature persisted after the lung and other symptoms had entirely passed away. No rational explanation for the persistency of the temperature could be given; and in spite of it the patient seemed to be progressing very favorably, and finally it became normal.

He had been sitting up in bed, with the aid of a head rest, for some time, and on the forty-second day he was allowed to sit in a chair, half an hour in the morning and the same time in the afternoon. No bad effects were noticeable. On the forty-third day he sat up in the morning, but did not do so in the afternoon, as he did not feel well; it seemed difficult for him to breathe. [illegible] had a slight pain on the left side of the chest in th [illegible] illary line. He said that he did not fall or slip in [illegible] or did he jerk the le [illegible] e leg and groin felt ju [illegible] did an examin [illegible] and a physical e [illegible] for his pain.

The next morni [illegible] rapid, and the dysp [illegible] practicallly the same [illegible] Fat was found in th [illegible] fourth day, but not so abundantly as it was in the previous attack, nor was it found after this morning. In the urine fat was found, in small amounts, for three days. Within six days these symptoms had diminished so as to be practically unimportant. (See Chart 2.)

Nervous symptoms, except those of anxiety, worry and restlessness, were also present in this second attack, as they had been during the first. The final result of the case was a perfect recovery.

Up to the year 1884, Reiter[66] was able to collect 207 cases. Since that time we have noted the following cases:

1884. Roth:[67] Fracture: death.
1884. Roth: Fracture; death.
1884. Park:[59] Fracture: death.
1884. Park: Operation on bone; death.
1884. Park: Operation on breast; death.
1884. Socin:[68] Fracture: death.
1886. Bonine and Belknap:[61] Fracture; recovery.
1186. Wahncan:[69] Fracture; death.
1886. Demisch:[52] Fracture; recovery.
1888. Coats:[70] Fracture; recovery.
1892. Whitney[63] Fracture; recovery.
1893. Colley:[80] Orth. operation; death.
1893. Colley: Orth. operation: death.
1893. Colley: Fracture: death.
1893. Colley: Fracture; death.
1894. Bard:[57] Fracture: death.
1894. Ribbert:[71] Fracture; death.
1894. Hirsch:[72] Fracture; death.
1894. Ribbert: Fracture; death.
1894. Finnotti:[73] Fracture; death.
1894. Ribbert: Fracture; death.
1895. DeGroube:[65] Fracture; death.
1895. Ahrens:[74] Orth operation; death.
1896. Lympins:[75] Orth. operation: death.
1898. Payr:[76] Orth. operation; death.
1898. Payr: Resection of knee; recovery.
1898. Payr: Resection of knee; recovery.
1898. Payr: Resection of knee; recovery.
1898. Eberth:[81] Orth. operation; death.
1899. Payr:[20] Orth. operation; death.
1899. Payr: Orth. operation; death.
1899. Payr: Orth. operation: death.
1900. Fibiger:[65] Leube's method; death.
1900. Svetchnikoff:[53] Fracture: death.
1900. Pomatti: Fracture; death.
1901. Engel:[29] Rupture of liver; death.
1902. Euphrat:[77] Fracture; death.
1902. Southam:[55] Fracture: recovery.
1903. Preindelsberger:[52] Orth. operation; death.

		Recoveries.	Deaths.
Fractures	22	3	19
Writer's cases	2	2	0
	24	5	19
Orth. operations	14	3	11
Amputation of breast	1	0	1
Rupture of liver	1	0	1
Leube's method	1	0	1
	41	8	33

DISCUSSION.

Dr. C. H. Lemon, Milwaukee, Wis.—I have had two cases of fat embolism of the lung following multiple fractures, and it has been surprising to me how few of these cases have been recognized. I am satisfied that many cases of fat embolism occur, but the symptoms are not recognized or are attributed to other causes. I was interested to learn that fat globules are so frequently found in the urine. In both of Dr. Connell's cases the fat embolism occurred in compound fractures, but the cases in which it occurred in my practice were simple fractures. It is rather astonishing to learn that fat embolism occurred in compound fractures, as we would expect the fat to escape with the wound secretion. In my cases the temperature was not higher at any time than 103. The lung symptoms appeared on the third day in one case and on the fourth day in the other. One case had considerable cough and expectorated a bright, bloody fluid. These symptoms lasted but two days and then subsided.

Dr. Jabez N. Jackson, Kansas City, Mo.—This is a condition which very frequently passes unrecognized, and it is important that more attention should be given to its recognition. I have seen several cases of this condition and have heard others reported under various erroneous diagnoses. Frequently it is difficult to make a positive differential diagnosis except by close exclusion. In one of my cases the symptoms were apparently identical with those of a very severe hemorrhage, and a diagnosis of this character was made by my hospital internes. The case in point was one of extensive comminuted fracture of the femur, and the signs of embolism presented themselves about eight hours after the injury. These signs of embolism came on very suddenly and consisted of a very rapid and feeble pulse and a correspondingly shallow and rapid respiratory rate, with the anxious expression so often seen in shock or hemorrhage. The diagnosis of hemorrhage was only excluded after a thorough examination of the seat of fracture, where no hematoma nor other evidence of hemorrhage was present and where there was no other injury to cause a hemorrhage elsewhere. There was, however, a little swelling and tension beneath the fascia of the thigh. I think that the character of the fracture has much to do with the occurrence of fat embolism. Two conditions are certainly favorable to embolism, first, fat globules in a free state, and, second, tension to force these globules into the circulation. Comminution of the fracture by crushing liberates the free fat. If now, from contusion locally, the extravasation is increased without rupture of the fascia, it will have a condition of extreme tension, which will favor the forcible squeezing of the fat into the mouths of open vessels. The period at which the signs of embolism appear will likewise be modified to some extent by these same conditions. Where the exudation or extravasation occurs rapidly and rapid local tension is produced, it is probable that the signs of embolism will appear more early, as was the fact in the case of my own to which I have alluded. Correspondingly, in a simple fracture with little local extravasation, the signs of embolism would probably appear later, if at all. I feel assured that this is worthy of more attention by the profession, as many cases at present undoubtedly occur and are not recognized.

Dr. J. E. Summers, Jr., Omaha, Neb.—I believe rough manipulation and improper fixation have something to do with the causation of this condition. We can surely help some of these conditions. Manipulation should be reduced to a minimum and the fixation should be as good as possible.

DANGERS FROM INDISCRIMINATE USE OF CATHARTICS IN ACUTE INTESTINAL CONDITIONS.

M. L. HARRIS, M.D.
CHICAGO.

Almost from the beginning of time man seems to have been possessed of an intuitive feeling that an acute abdominal affection, accompanied by an arrest of intestinal action, is an extremely serious condition which, if not soon relieved, must lead to a fatal issue.

In such cases, the laity realize the importance of proper bowel movements, and, having observed the relief which is often experienced when the interrupted bowel action is resumed, immediately resort to the use of cathartics to bring about the desired end, namely, a movement of the bowels.

Unfortunately, this intuitive feeling seems to be so deeply rooted in the mind of man that even a study of the science and art of medicine at times fails to dislodge it; for one too often sees otherwise intelligent physicians following it blindly, to the destruction of their patients, and without regard to the cause of the arrest

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66. Reiter: Jahresbericht der Medicin, 1886, vol. i, p. 237.
67. Roth: Revue de Chir., vol. xv, 1895.
68. Socin: Jahresbericht über die Chir. Abteilung des Spitals zu Basil Fur., 1883-84.
69. Wahncau: Inaug. Diss., Halle, 1896.
70. Coats: Glasgow Med. Jour., 1888, vol. xxix, p. 431.
71. Ribbert: Corresblat. f. Schweizeerzte, 1894.
72. Hirsch: Brit. Med. Jour., July 7, 1894, p. 13.
73. Finotti: Deut. Zeit. f. Chir., 1894, vol. xxxix, p. 508.
74. Ahrens: Beit. f. Klin. Chir., vol. xv.
75. Lympius: Cent. f. Chir., 1896, p. 800.
76. Payr: Munch. med. Woch, July 28, 1898, No. 28, p. 885.
77. Euphrat: eut. med. Woch., July, 1902, No. 29.

of the bowel action which they seek to restore. Not much is to be hoped for from the laity in this matter, but something should be expected from the intelligent physician.

In considering the numerous acute affections of the abdominal viscera, which are accompanied by a suspension of bowel movements, it should be understood and remembered, and never forgotten, that no patient ever dies simply because the bowels do not move.

It is well known that a person may go for days or even for weeks without a bowel movement and still continue at his usual vocation with little or no apparent inconvenience. But let the intraintestinal current be suddenly arrested by some acute affection, and the individual is at once brought low and the seriousness of the condition is so visibly stamped on every feature that he who runs may read. Wherein does this latter case differ so materially from the former?

It differs from it in this important fact, namely, that some distinct pathologic condition has placed its grip on some portion of that intestinal tract and thereby produced such a trauma as not only to interrupt its function, but also, if unrelieved, to lead to its local destruction.

The particular pathologic condition may assume a variety of forms which will be mentioned later. The fact which it is desired to emphasize as strongly as possible at this point, is that the patient's danger lies not in the fact that his bowels do not move, but in the condition which produces the obstruction, and as a corollary to this it follows that the administration of cathartics of any and of all kinds under these circumstances, with the idea in view of attempting to force a bowel movement, is not only irrational and illogical, but often productive of the greatest harm to the patient.

So far as the conditions at present under discussion are concerned, cathartics may be described as acting in two ways, namely, by stimulating peristalsis and by increasing the amount of fluid in the intestinal tract.

Let us consider first, then, those cases in which there is a complete mechanical closure of the lumen of the bowel, such as occurs in strangulated hernia, either external or internal; in compression of the bowel beneath peritoneal bands; in strangulation by reason of a loop of bowel becoming caught in an omental or mesenteric opening; in adhesions of the bowel producing kinking; in volvulus, etc. It is very evident in these cases that no cathartic, however strong it may be, is capable of overcoming the obstruction.

Under these circumstances the effect of all cathartics is harmful. That portion of the intestine lying cephalad of the obstruction is filled with fluid which favors the putrefactive changes constantly taking place. The intestinal contents are churned back and forth by the increased peristalsis, and, finally, not being able to pass the seat of the obstruction, are forced in a reverse direction back into the stomach, thus giving rise to the foul, offensive vomiting so characteristic of the condition. The stimulated peristalsis forcing the intestinal contents against the obstruction increases the strangulation and hastens the sloughing or cutting through of the bowel at that point. It produces dilatation and congestion of the proximal loops of the bowel, with small mucous and submucous hemorrhages and venous thromboses which lead to the formation of small ulcers, if time permit, often with minute or pin-point perforations, all of which permit and favor the passage of microbes into and through the intestinal wall into the peritoneal cavity, with the production of a fatal peritonitis.

In invagination also the harmful effects of cathartics readily may be seen, for the increased peristalsis can have no other effect than to still further increase the invagination; and the intestinal contractions must augment the congestion and swelling of the intussusceptum, and thereby earlier lead to complete obstruction and sloughing.

It is well known that complete paralysis of a portion of the intestine, such as occurs in somewhat localized inflammatory conditions, as, for instance, a sigmoiditis, or where a portion of the intestine has been suddenly deprived of its blood supply as in thrombosis of the mesenteric arteries, may block the passage of the intestinal contents at times almost as effectually and completely as if a mechanical obstruction were present.

The harmfulness of cathartics in the former case will be shown presently while their futility in the latter is apparent, as these patients all die within a short time from sloughing of the bowel and peritonitis, unless relieved by early operation.

We now come to that rather indefinite class of cases in which intestinal obstruction is due to a paralysis of the intestinal wall, or to a more or less localized spastic contraction of the same from unknown causes. To this class, undoubtedly, belong those cases of obstruction which undergo a spontaneous recovery or which recover under medical treatment.

It can not be said that the exact pathology of these cases is clearly understood, but that such cases occur seems certain. We are led to this conclusion, not only by force of reasoning from the cases that recover, but also by the fact that cases presenting symptoms of mechanical obstruction have been operated on and nothing but a paralytic or a spastic condition as mentioned above found.

Heidenhain[1] has collected some of these cases and presented them in a very interesting manner. The failure of repeated doses of cathartics to bring about a bowel movement is particularly noted, while, on the other hand, the beneficial effects of antispasmodics, such as opium, were shown in some cases. It is probable that to this class of cases belong those which have apparently recovered after the hypodermic injection of large doses of atropin, as has recently been recommended.

The last class of cases to be mentioned is that in which an acute peritonitis, more or less circumscribed, is the chief pathologic condition, be its origin in the appendix, the fallopian tube, the gall bladder, an intestinal perforation or other structure.

The increased peristalsis produced by cathartics in the early stages of these cases may not only break up the delicate circumscribing adhesions just forming, but may also favor and aid the distribution of the infection throughout the peritoneum.

It will thus be seen that in the great class of cases herein under consideration, the use of cathartics, as a rule, is positively injurious to the patient.

But there is another very important reason why they should not be given. For years the surgeon fought against the indiscriminate use of opium in these cases because it so masked the symptoms as to lead to an erroneous diagnosis or induced in the patient an apparent feeling of betterment which was but false and which but too often led to a fatal procrastination in seeking the necessary surgical relief.

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1. Arch. für Chir., vol. lv, p. 211.

So, too, the administration of cathartics in these cases frequently so clouds the clinical picture as to make an accurate diagnosis of the case impossible. This was very forcibly illustrated to me during the past year.

Patient.—A strong, healthy young man, aged 30.

History.—After a few days of general malaise and irregular diarrhea he was seized on July 9, 1904, with chilly sensations followed by nausea, vomiting, rise of temperature and complete constipation with general abdominal pain. Toward evening of the same day he experienced severe pain in the lower left side of the abdomen, radiating upward toward the chest. The pain was paroxysmal in character and was somewhat relieved by an enema.

Examination.—A tender, elongated mass easily could be made out in the region of the sigmoid flexure. The next day he was brought to the hospital with a diagnosis of probable invagination, and I saw him in consultation that evening.

Diagnosis.—I made a diagnosis of sigmoiditis, based on the location and general outline of the mass in the abdomen, the tenderness, vomiting, rise of temperature and complete constipation. Intussusception was excluded because there had been no mucous or bloody stools which most likely would have been present in an intussusception of that portion of the bowel. Operation was, therefore, not advised. Unfortunately, during that day he had taken cathartics in the shape of repeated doses of calomel and Epsom salts. During the night these began to work and he had some mucous stools containing blood. When these stools were shown to me the next morning they cast enough doubt on the diagnosis of sigmoiditis to induce me to open the abdomen, thinking, perhaps, that I had made a mistake and that the mass was really an invagination.

Operation.—I found a simple sigmoiditis. The sigmoid and lower end of the descending colon were inflamed, thickened and somewhat edematous, but there was no sign whatever of an invagination. The abdomen was closed and the patient recovered without any unfavorable symptoms.

Had this patient not been given the cathartics, which could have done him no good under any circumstances, he would not have had his clinical picture clouded and would have escaped an unnecessary operation.

The time to make a correct diagnosis in acute surgical affections of the abdomen is in the beginning of the trouble. In the early stage of the large majority of these cases a careful examination of the abdomen by sight, palpation and percussion, will enable one to make a correct diagnosis of the conditions present.

The exact point of greatest tenderness, the location of an *inflammatory mass, a distended loop of bowel*, a loop of bowel which is tender or one which is fixed to some particular spot, the presence of collapsed or distended loops to be felt on rectal examination, visible peristaltic waves which are general or limited, a mass in the region of hernial openings, are all points of the greatest importance in making up a diagnosis, but they are also points which are lost during the later stages or when the intestine has become distended and disturbed in its relations by the injudicious administration of cathartics.

How often the surgeon is called in near the end to find a patient with an abdomen so distended as to render it absolutely impossible to outline anything within it; a patient so restless as to be unable to remain quiet a minute; with hollow, sunken, tired, wide-awake eyes from which sleep has been banished for many hours; a mind clear and active to all that transpires about him, but totally indifferent to his own hopeless condition; with lips that are red, parched and hot, made doubly so by the constant sucking and swallowing of cracked ice, which is but heaping coals on the fire. By his side there is a bowl into which every few minutes he vomits a quantity of dark greenish or blackish foul, offensive fluid; indeed, it seems to run out so easily that it can scarcely be called vomiting, and while one sits and meditates on the lost opportunity and the almost hopelessness of the situation, he listens to the tale of the patient or of the nurse, or alas! at times of the attending physician, of the repeated doses of castor oil, of calomel, of salts, of magnesia, etc., *ad nauseam*, which have been poured down the poor patient's throat only to be promptly returned with interest.

This is not an overdrawn picture. I have seen it many times, but in the majority of the cases it must be said that the picture is an unnecessary one.

Let it be remembered that in every case of acute abdominal trouble an accurate history should be obtained and a most careful examination of the abdominal contents should be made at the earliest opportunity.

Do not forget that in strangulation of the bowel or other mechanical obstruction, or when the bowel is paralytic or spastically contracted, that cathartics of all kinds, however they may be administered, are almost always positively harmful.

Remember that the stomach and intestine in these conditions absorb very reluctantly or not at all anything put in them. They even secrete an increased amount of fluid which is forced back into the stomach and ejected by vomiting. The treatment in these cases is easily outlined.

Wash out the stomach with warm physiologic salt solution or dilute soda solution, and then keep it empty. Do not permit anything to enter it, not even water. The beneficial effect of gastric lavage in these cases was thoroughly demonstrated by Kussmaul years ago. Then empty the lower bowel by means of enemata so that the entire intestinal tract may be placed as nearly at rest as possible.

It is unnecessary to feed these patients for a time, for they never die of starvation, but they do need water, and this should be administered subcutaneously in the form of physiologic salt solution from 1,000 to 2,000 c.c. in the twenty-four hours. Such subcutaneous injections may be repeated any number of times by changing the location of the injection. It is to be understood, of course, that this treatment is but preliminary, and is to be supplemented by the proper operative measures at once in all cases in which a mechanical obstruction can be diagnosed or even found probable.

The treatment outlined places the patient in the best possible condition to undergo an operation, or in case an operation is deemed undesirable, it places him in the most favorable condition to aid nature in bringing about a cure.

It is not my intention at this time to enter into a description of the various operative procedures applicable to the numerous conditions above mentioned, for they are tolerably well defined, but I desire:

1. To enter a protest against the very common practice of indiscriminately administering cathartics in acute surgical affections of the abdomen.
2. To emphasize the diagnostic importance of a careful and thorough examination of the abdomen at the earliest possible opportunity.
3. To urge the importance of placing the entire intestinal tract at rest in the manner above described.
4. To operate at once on all cases of mechanical obstruction just as soon as the diagnosis can be made.

Special Article.

IMMUNITY.

CHAPTER V.

NATURAL IMMUNITY: (A) PROTECTION OF THE BODY SURFACES; (B) THE RÔLE OF INFLAMMATION.

The Skin.

(A) Virulent organism (e. g., staphylococci and streptococci) exist normally on the skin or between the superficial horny cells, some exceptional circumstance being necessary to enable them to penetrate deeper and to cause disease (wounds). It is evident, then, that the physiologic shedding of the superficial horny cells and their continual reformation at a deeper level is a process calculated to rid the surface of the body of many micro-organisms.

The question whether micro-organisms can ever penetrate the unbroken skin has been much discussed. Although experiments have shown that traumatism is not absolutely necessary, clinical experience indicates that these so-called cryptogenetic infections are not of ready occurrence. When they do occur, the infection atrium is probably one of the glandular orifices.

Soluble poisons such as aconite and bacterial toxins are not absorbed through the unbroken skin.

Cutaneous Orifices.

The sweat glands with their ducts, and the hair follicles with their appended sebaceous glands, are vulnerable points in the defense which the cutaneous surface represents. Although both these structures are somewhat protected by the flow of their excretions, especially in warm weather, and although the entrance of germs is made more difficult by the contraction of the skin and consequent narrowing of the orifices in cold weather, yet various incidents may lead to the introduction and retention of virulent micro-organisms in these structures. When this occurs there is little difficulty in the way of their producing necrosis of the epithelium and invasion of the surrounding tissue, causing a pustule, boil, carbuncle, cellulitis, or even a generalized infection. The secretion of the sebaceous glands appears to be not germicidal. On the other hand, the acid nature and certain salts found in perspiration render this fluid antagonistic to the development and virulence of some micro-organisms.

The serous exudate and the crust which forms subsequent to an abrasion antagonize infection. The serum itself contains germicidal substances, while the crust mechanically excludes microbic invasion.

Subcutaneous Connective Tissue.

Even after germs penetrate the epidermis, the subcutaneous connective tissue is often an obstacle to their further extension. The subcutaneous injection into animals of some micro-organisms (e. g., cholera) is tolerated better than one given into the abdominal cavity or blood circulation. We are also familiar with the benign course of lupus compared with visceral tuberculosis; the same is true of cutaneous and visceral glanders. These phenomena are explainable, at least in part, by the rapidity with which new connective tissue forms in this locality, offering a mechanical limitation to the infection, and by the rich lymph supply which makes possible the rapid accumulation of bactericidal lymph and of phagocytic cells. On the other hand, it must be mentioned that in some cases the subcutaneous tissue offers no perceptible resistance to bacterial invasion (plague), and that toxins may be more virulent when introduced into this tissue than when injected into the abdominal cavity or the general circulation (tetanus).

Mucous Membranes.

The moist condition of mucous membranes has been found to favor the multiplication of many microbes. Mucus is not in itself actively germicidal, but is said to attenuate the virulence of some micro-organisms, as the pneumococcus. A layer of mucus, however, is a mechanical protection, and its constant excretion is a means of steadily removing bacteria from mucous surfaces.

Conjunctiva.

The conjunctiva is protected against infection by the mechanical interference of the eyebrows, eyelashes, eyelids, irrigation of the conjunctival surface by tears which carry germs through the lachrymal duct into the nasal cavity, the ability of the conjunctival epithelium to repair itself rapidly, and the mild germicidal action of the salts which are present in the tears. These protective agencies, however, are often surmounted by micro-organisms, such as the pneumococcus, staphylococcus and the influenza bacillus. Many soluble poisons, aconite, diphtheria toxin and the toxin of hay fever are readily absorbed from the conjunctiva.

Nasal Cavity.

Compared with the anterior nares, the posterior aré poor in micro-organisms. This is no doubt due to the filtering of the air by the hairs, the tortuosity of the channel causing dust and bacteria to strike the walls where they are held by a moist surface, and the action of the ciliated epithelium in carrying them imbedded in mucus again toward the anterior nares. Nevertheless, the nasal mucous membrane is a common infection atrium for streptococci, staphylococci, diphtheria and influenza bacilli, the virus of hay fever, and, probably, for other infectious agents.

Mouth.

At least thirty species of micro-organisms flourish in the oral cavity, some of them being pathogenic: staphylococci, streptococci, pneumococci, and often diphtheria bacilli. They are constantly removed with the saliva, and through the extensive desquamation of the epidermis occasioned by mastication. Saliva is not germicidal, but inhibits the growth and weakens the virulence of some bacteria. The fetid breath and the sordidity observed in fevers where the mouth is dry, at least in part, is attributable to the lack of saliva with its anti-infectious properties. The great rapidity with which wounds of the mouth heal is a potent factor in preventing serious infections.

Lungs.

Micro-organisms do not readily reach the ultimate ramifications of the bronchioles. In ordinary respiration the velocity of the inspired air is so reduced as it nears the alveoli that the further movements of the gases is one of gradual diffusion more than of violent admixture. Consequently there are greater opportunities for germs to come in contact with the bronchial walls where they become imbedded in mucus with which they may be expelled by coughing and the action of the ciliated epithelium. Both the alveolar epithelial cells and the leucocytes which enter the air sacs and bronchioles have been shown to take up bacteria. The conditions in the lungs which favor the development of infections, bronchitis, pneumonia, influenza, tuberculosis, etc., are by no means clearly understood. Variations in individual resistance, here as in other parts of the body, are certainly of great importance. It has been demonstrated that systemic infections, as with anthrax bacilli, may be caused by the inhalation of the germs; and it is probable that the lung is the infection atrium for a number of our acute infectious diseases.

Stomach.

The gastric juice, through the hydrochloric acid it contains, is able to kill anthrax, typhoid, tubercle bacilli, cholera vibrio and other organisms. Clinical and experimental evidence shows that this power is often inadequate, virulent micro-organisms reaching the intestines in spite of it (typhoid, cholera, dysentery, tuberculosis, etc.). It is probable that bacteria in the stomach are often protected against the action of the gastric juice to some extent by being imbedded in solid particles of food. Certain acidiphilic germs, as well as yeasts and torulæ seem to flourish in the gastric secretions; these are largely non-pathogenic, but the regularity with which peritonitis follows perforating wounds of the stomach indicates that it probably always contains pathogenic bacteria, though it may be only their temporary habitat. The gastric juice may render some bacteria harmless by digesting their toxins; one gram of the gastric juice of a dog will neutralize fifty fatal doses of diphtheria toxin, or 10,000 of tetanus toxin, using the guinea-pig as the test animal. On the other hand, the toxin of the bacillus of botulism (causing a form of meat poisoning) seems to be uninfluenced by the stomach contents, as the development of the intoxication indicates. Vomiting is often a means of ridding the stomach of toxic substances, including bacteria. The stomach itself is exceptionally free from infections.

Intestines.

The bile is moderately bactericidal for some germs, but on the whole the intestinal secretions have low germicidal powers; this is indicated by the fact that the colon contains many more bacteria than the duodenum, great proliferation having occurred. On the other hand, the pancreatic juice destroys some toxins (diphtheria, tetanus) more powerfully than the gastric juice. This ability of the pancreatic juice to destroy toxic bacterial products may explain why enteritis is more frequently found in the ileum than in the duodenum. The bile also has a neutralizing power for some toxins. Although a number of pathogenic bacteria inhabit the intestinal tract, colon bacillus, streptococci, etc., in the adult they do not often set up inflammatory processes nor penetrate the mucosa to set up recognizable changes. The tissues become accustomed to their presence. The pathogenic bacteria which do not normally exist in the intestines are those which, on introduction, cause disease (typhoid, cholera, dysentery, etc.). The intestinal tract of the infant, on the other hand, is frequently inflamed by some micro-organisms (streptococcus, colon bacillus, bacillus pyocyaneus), which in the same locality in the adult appear harmless. The fact that many individuals are not stricken in an epidemic, where all are equally exposed to infection, indicates that such pathogenic organisms as those of typhoid, cholera and dysentery often traverse the intestinal canal without inducing disease. Naturally, microbes are eliminated in enormous quantities in the feces, and in inflammatory states this elimination is increased by diarrhea. It is also not to be forgotten that the intestinal tract is to a considerable extent a lymphoid organ, and that consequently in the presence of infection enormous quantities of phagocytes can quickly be called into action.

The protective properties of the *genito-urinary surfaces* are not different in principle from those already mentioned, for example, vaginal acidity, urinary irrigation.

(B) *Although there are many chemical and physical causes* of inflammation, we are interested here only in those of infectious etiology.

Nature of Inflammation.

We are to look on inflammation as a reactive process on the part of the tissues, which is induced by some injurious agent. The process may be beneficial in some instances, while in others it may be pernicious from the beginning to the end. The thickening of the endothelium of the cerebral vessels as one sees it in syphilis, for example, is a progressive, reactive change which in no sense can be of benefit to the individual, and which can have no conceivable function in overcoming the syphilitic infection. Likewise, the new formed connective tissue seen *in alcoholic cirrhosis of the liver* is of no benefit to the hepatic tissue, though it may serve in some degree to protect the liver cells from the alcohol which continues to be ingested. In an ulcer of the cornea the presence of serum and of leucocytes, as well as the proliferation of connective tissue, may be the *sine qua non for the healing of* the ulcer, yet the resulting scar may greatly impair the vision. On the other hand, an extensive scar which has formed in the skin and subcutaneous tissue as the result of a wound or an infection, may be harmless because of its situation.

It is then to be recognized that there are certain consequences of the inflammatory reaction, the seriousness of which depends on the situation, severity, duration and extent of the process, and that these *consequences are independent of any* protective function the inflammation may have exercised previously.

Variations in the Reaction.

The amount and character of the reaction are subject to many variations, depending on a number of conditions:

1. It varies with the nature of the microbe. Non-pathogenic organisms induce little more inflammation than so many minute, inanimate, non-toxic particles. The tubercle bacillus causes especially the formation of connective tissue, giant cells and the accumulation *of lymphoid cells, aside from some* retrogressive changes characteristic of the disease. The streptococcus, pneumococcus, etc., induce the formation of pus, fibrin, the accumulation of serum and of polymorphonuclear leucocytes more than mononuclears; while proliferation of fixed tissue elements is secondary. The tetanus bacillus alone causes almost no local inflammatory change.

2. The reaction is influenced by the virulence of a particular bacterium. A streptococcus which has lost its virulence is disposed of by the animal tissues with a minimum tissue reaction, perhaps no more than slight congestion and the wandering in of a few leucocytes; one of average virulence causes an intense reaction, manifested by congestion, edema, *hemorrhages, necrosis and* pus formation; then streptococci with such great virulence are occasionally encountered that they destroy life in the course of a few hours, having elicited barely perceptible inflammatory changes (seen sometimes in wound infections and peritonitis).

3. It has a relation to the resistance of the individual. Metchnikoff, in particular, has shown that animals of high resistance to a particular microbe destroy the germ quickly by phagocytosis (the ingestion of particles by cells, especially the leucocytes), while in susceptible animals the accumulation of phagocytic leucocytes is deficient.

The features of inflammation to which we attribute a protective effect in infections, on the one hand, are those of a progressive *nature, as the proliferation of connective tissue,* blood and lymph vessels, epithelium and lymphoid tissue; and, on the other hand, some conditions which are not essentially progressive, but which may be valuable adjuvants both in the formation of new tissue and in antagonizing the injurious agent, as *accumulations of plasma or serum, fibrin* and leucocytes.

Leucocytes.

The function of the leucocytes and lymphocytes in an infectious inflammation is one of the most interesting and problematic in pathology. It is a long known fact that some microbes attract one kind of leucocyte, while others attract another kind. Thus, in tuberculosis one finds lymphocytes and plasma cells—mononuclears—predominating greatly over the polymorphonuclears. In the acute purulent infections, on the other hand—streptococcus, staphylococcus, pneumococcus—the latter type of leucocyte predominates, while the mononuclears are fewer and tend to remain at a respectful *distance from the center of action. Then, again,* the aggregate of leucocytes attracted by a given micro-organism varies a great deal in different cases: this probably depends on variations both in the properties of the microbe and of the cells of the individual.

Chemiotaxis.

This phenomenon of living cells moving toward or away from certain other cells or substances is termed chemiotaxis: the former is positive, the latter negative, chemiotaxis. There is a somewhat general law, but one to which well-marked exceptions exist, that, regardless of the microbe involved, the more acute the inflammatory process the more do polymorphonuclear leucocytes accumulate, while in the more chronic infections, with much connective tissue formation, the mononuclear leucocytes predominate; and there is reason to believe that the latter cells play an important, though perhaps indirect, rôle in the formation of the connective tissue.

Phagocytosis.

The ingestion of particles by living cells, phagocytosis, is a property which many cells possess. Although micro-organisms and inanimate particles are sometimes found in epithelial cells, certain of the mesoblastic cells have this function pre-eminently: Polymorphonuclear leucocytes, large mononuclear leucocytes (lymphocytes), connective tissue and endothelial cells, named in order of importance. Of these the polymorphonuclear leucocytes, the microphages of Metchnikoff, have the greatest phagocytic power; the others, the macrophages, are more exceptionally phagocytic. Now, the mere ingestion of the bacteria by such cells would not be of necessity injurious to the microbes: indeed, opponents of Metchnikoff's phagocytic theory of immunity hold that phagocytosis by wandering cells may be, and often is, pernicious, as the cells may return to the circulation and spread the infection to other parts. But when we learn that after ingesting the bacteria the phagocytes are often able to kill and digest them, it is realized that the process may be a very salutary one. It is also represented that such cells have the power of excreting their germicidal substances into the plasma and serum and lending to the latter a bactericidal power. Furthermore, it is held that they may absorb liquid poisons, bacterial toxins, and by a similar process destroy their toxicity. Granting these points, which are essential tenets of the phagocytic theory of immunity, the importance of positive chemiotaxis in the recovery from an infection becomes manifest.

Influence of Plasma and Serum.

Serum, even when entirely free of leucocytes, has bactericidal powers: it need not be discussed at present whether this power exists primarily in the serum or is one conferred on it by the leucocytes. In view of its presence, however, it is evident that the serous exudate which is usually present in inflammations, especially the acute, may be of influence in combating the infection. Serum also contains natural antitoxins, and, in addition, it may be of value in lessening the toxicity of poisons by diluting them and by washing them away.

Fibrin.

The abundant deposit of fibrin in some inflammations is of mechanical value in hemming in the infection and in offering a barrier to the rapid diffusion of toxins. We are all familiar with the part played by fibrinous and fibrous adhesions in preventing a localized peritonitis from becoming generalized. In prolonged inflammations fibrin furnishes a ground substance into which new connective tissue and vessels grow (organization).

Inflammatory Connective Tissue.

The new formed connective tissue seen in many inflammations, especially the chronic, as in tuberculosis and actinomycosis, offers an important barrier to the extension of an infection. Perhaps no better example of this could be cited than the dense tissue which forms around a tuberculous sinus or abscess.

To sum up: An inflammatory reaction antagonizes an infectious process, mechanically, through the presence of fibrin, leucocytes and new formed connective tissue, chemically, or physicochemically, through local antitoxic and bactericidal agencies contained in the fluid and cells—phagocytes.

The value of hot applications in local inflammations, in that they increase congestion, which hastens the exudation of plasma and leucocytes and the proliferation of cells, finds a logical explanation in view of the facts mentioned. Also increase in local temperature probably favors chemical actions.

There are many details in reference to the part played by phagocytic cells in inflammation and immunity which it is impossible to consider here. Adami's[1] classic article on inflammation treats of many of these details in an admirable manner.

(*To be continued.*)

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[1] Allbutt's System of Medicine, vol. 1.

The Training of the Surgeon.—Dr. Senn, in the *Monthly Cyclopedia of Practical Medicine*, sums up the training of a surgeon as follows: Master the elementary branches in college, do general practice for several years, return to laboratory work and surgical anatomy, attend the clinics of different operators, and never cease to be a physician. If this advice is followed there will be less unnecessary operating done in the future than has been the case in the past.

Clinical Report.

A CASE OF ARTHRITIS DEFORMANS IN WHICH LARGE DOSES OF ARSENIC WERE TAKEN.*

DUNCAN L. ALEXANDER, M.D.
Interne, University Hospital,
ANN ARBOR, MICH.

Patient.—A. M., aged 24, single, farmer, American; was admitted to the medical clinic of the University Hospital, Oct. 29, 1901. Patient complained of dull, heavy pain, stiffness and deformity of many joints. Family history negative. Previous history negative. Diphtheria at 6, measles at 15. Denies venereal disease.

History.—The present disease began six years ago with a dull, heavy pain, swelling and grating on movement of the left knee. The same condition manifested itself in the left hip, left elbow and wrist, in rapid succession. Two years ago, the temporo-maxillary joints became stiff, with a click on movement and much swelling over the glenoid fossæ. At the same time there was stiffness of the neck; soreness, and pain on swallowing, in the region of the thyroid cartilage and hyoid bone. At the articulations of the costal cartilages with the sternum there was soreness and a dull ache, which became aggravated on deep breathing.

The right hand, elbow, hip, knee and ankle were attacked in the same manner one year later. The feet were the seat of a burning sensation, became swollen and sore and stiff, especially in the region of the tendo Achillis. The swelling in the various joints was not constant. There was much twitching of the muscles of the lower extremities, more pronounced before a storm.

About two years after the appearance of the joint condition, the skin gradually became pigmented. The color was a yellowish brown and diffuse, more marked over the shoulders, nipples, back, buttocks and genitals. Often there was a feeling of uncomfortable warmth about the upper part of the body, followed by perspiration or coldness. All the symptoms have gradually progressed up to the present time except the swelling.

Examination.—The patient limps about with the aid of crutches; removes his clothes with difficulty, and is unable to raise the lower extremities on lying down. His frame is slightly above medium size. There is considerable atrophy of all the muscles of both upper extremities, especially on the left side. The left thigh and leg muscles show moderate atrophy. There is much pain and tenderness in all the muscles.

The temporo-maxillary joint is weak and stiff and gives a click on motion. The shoulders are normal. The left elbow is partially ankylosed, allowing 5° motion; all the tissues are thickened. The right elbow is normal except for a slight grating. The left wrist is slightly enlarged and ankylosed, permitting a movement of 3°. The right wrist is swollen, red and tender, allowing only 5° of motion. The left hand has fusiform bony enlargements of the second phalangeal joints of the index and middle fingers. The metacarpal-phalangeal joints of the little finger present an elastic swelling and stiffness. All the joints of the right hand show enlargement and stiffness. The metacarpal-phalangeal joints of the first and second fingers show fusiform elastic enlargement, suggestive of fluid.

Both hips are partially ankylosed, sore and painful on movement. The left knee is stiffened, but not enlarged; the loss of movement is apparently due to contraction of the thigh muscles. The right knee is normal. The feet give grating on movement. The entire spinal column allows free motion.

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*From the Medical Clinic of Dr. Dock.

The thorax is normal. Heart and lungs, normal. Radial pulse, 80 a minute. Temperature, 99 F. Abdomen, normal; bowels, regular. Examination of the stomach contents shows normal condition. The blood count, 4,480,000 red cells, 8,912 leucocytes per c.mm.; hemoglobin, 80 per cent. Five m.g. Koch's tuberculin gave no reaction.

Diagnosis.—From the history of the insidious onset of the disease, the pain, the symmetrical involvements of the joints and of all the structures, the destructive changes therein, the twitching, tenderness and atrophy of the muscles, the pigmentation, the sensation of heat and coldness, the unnatural sweating and the absence of specific or tuberculous disease, a diagnosis of arthritis deformans was made.

Treatment.—The treatment consisted of rest in bed, with oil of gaultheria over the joints. Internally, small doses of salol and phenacetin were given for the muscular pain. Liquor potassi arsenitis was ordered in increasing doses.

Result.—While under observation, the swelling and soreness of the hands improved; the pain and tenderness of the muscles decreased. The temperature ran an irregular course between 97.4 and 100.2 F. The pulse ranged between 72 and 112. The patient was discharged Nov. 17, 1901, with instructions to continue the treatment which he had been receiving.

Subsequent History.—He returned to the hospital Oct. 2, 1903, and stated that after leaving here he remained in bed the following winter, applying passive exercise to the joints; massage to the muscles; vapor baths for the acute attacks of pain, and medication as above. Improvement was gradual except in the right hip; the effusion in the joints disappeared; the ankyloses improved, but he still complained of the heavy pain in the joints, twitching of the muscles and of general stiffness, especially before storms. Improvement continued up to the spring of 1903, when the patient was able to walk with the aid of a cane.

During all this time the pigment over the body increased, mostly on back, axilla, buttocks, nipples and genital region. During the first three months of medication the pigmentation increased most rapidly. This was especially noticeable as the dose of Fowler's solution was between 10 and 16 drops t. i. d. Dosage above 16 drops t. i. d. could not be borne without swelling of lids, suffusion of the conjunctiva, nausea, and a tendency to diarrhea. Some months later, the skin of the palms of the hands and soles of the feet became thickened. Later, the openings of the sudoriparous glands of palms of har

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in diameter with no deeper ring of pigment around them, giving the appearance of the pigment having been washed out by individual drops of water.

The dorsal surfaces of the hands are unpigmented; the skin is abnormally thin and shiny; there is no hair on the radial sides.

Over the thigh there is a deep bronze pigmentation, more marked just above the knees. The inner surfaces of the legs show a lighter diffuse pigmentation with several small, round, deeply pigmented spots the size of freckles. The outer surfaces are less pigmented; the skin is thin, glossy, with no hair, giving the appearance found on the hands.

The feet have a pinkish blue color, the soles and also the palms of the hands are thickened and rough, resembling icthyosis. On the shoulders there are red papular eruptions caused by the inflamed orifices of the sudoriparous ducts. On the balls and heels of the feet are numerous hornlike elevations 2 m.m. wide and 3 m.m. high, caused apparently by hypertrophy around the orifices of the ducts. There is unusual sweating on hands and feet. There is a slight transverse notching of all the nails.

The temporo-maxillary and shoulder joints are normal except for a slight grating. The left elbow presents slight bony enlargement with movement of 70°; about one-half supination and pronation is possible. The right elbow gives grating on movement. Both wrists show enlargement of the styloid processes of the radii, and allow 25° movement. The left hand shows stiffness and enlargement of all the phalangeal joints. The little finger shows marked shortening of the proximal phalangeal bone. The first finger shows bony enlargement of the metacarpal-phalangeal joint. There is partial ankylosis of the sacroiliac joint. The left iliac bone is higher and protrudes more forward than on the right. The thighs can be flexed to a right angle with the body; the flexing causes a pushing of the pelvis backward so that the hand can not be placed under the back. The left femur is 1½ inches shorter than the right. The knees are not altered in shape; the limitation of movement in the right is due apparently to spasm of the thigh muscles. The feet are normal, except for slight enlargements of the metatarsal-phalangeal joints of the great toes.

The thorax is normal in shape; lungs and heart, normal. No palpable sclerosis of the vessels; pulse, 72; temperature, 99.

There is severe neuritis of both anterior crural and inguinal nerves; less severe in the circumflex and sciatics. The tendon reflexes are slightly exaggerated at the knees. All sensory tests give normal result. The urine is normal. The blood shows improvement over condition when first observed, giving 5,080,000 red cells; 8,657 white cells to c.mm.; Hb. 90 to 100 per cent.

In summing up this case there are some interesting points to be noted. The treatment consisted principally of the continued use of liquor potassii arsenitis for a period of nearly two years. At no time could a dose above 16 drops t. i. d. be borne without showing symptoms of acute arsenical intoxication, such as suffusion of the conjunctiva, puffiness of the lids, nausea and a tendency to diarrhea. This would indicate that in this case no tolerance was produced, as is usually the rule in the internal administration of arsenic. In all, 27 fluid ounces of Fowler's solution have been taken, which represents about 130 grains of arsenious acid in two years, or an average of 1/6 grain daily, only enough, according to authorities, to cause the mildest signs of chronic intoxication.

The general improvement of arthritis deformans for such a length of time is of interest. The morbid processes in and around the joints have largely disappeared; the pain and movements are much improved, even in those joints where destructive change was produced as shown by the shortening of the bones and grating. It has been mentioned before that the right hip has not shown the improvement of the other joints. Such improvement may be due to treatment, of may be spontaneous. *No doubt, a part was accomplished by treatment.*

The muscular system as a whole shows improvement. There is less twitching, pain and atrophy. The atrophy remains most marked on the right side, although these muscles are exercised, especially in the upper extremity, by using a cane.

Of the remaining changes which should be mentioned part are entirely due to disease, part to the arsenic, and part probably to both. There is a slight neuritis of both the circumflex and sciatics, more marked in the inguinals and anterior crurals. The question arises whether or not this neuritis is of arsenical nature. A definite answer is impossible, but it seems to be no more severe than is present in many cases of arthritis deformans.

The patellar tendon reflexes are slightly exaggerated, as might easily arise from the neuritis present, or result from the arsenic, as such a condition is found in mild forms of this intoxication and in the earlier stages of the severer forms receding paralysis. The normal condition of the sensory erves shows that there has been no effect on their powers transmission. However, cases in the recent Manchester, gland, epidemic were found in which there was paralysis the muscles and normal sensation.

he burning sensations of the skin on the feet are commonly found in both conditions, but as it was present before the treatment was instituted it is fair to assume that a large part at least is due to the disease.

The changes in the skin are the most difficult to interpret. The presence of the patch of pigmentation over the right eye, which the patient says is a "birth-mark," is of interest, as such patches on the forehead or temples form one of the earliest signs of arthritis deformans.

The diffuse pigmentation was present in part before any medication, and is a very common sign of the disease. The marked increase during the first months of medication was no doubt due to the arsenic. It might be well to call attention here to the fact that a temporary increase of this pigment appeared just previous to oncoming storms from the south or east, and that the pigment was most pronounced in the regions of the body having the most pain (usually the thorax). This pigmentation was always accompanied by a diffuse erythema and followed by a branny desquamation. These conditions may have been due to a change in the vasomotor system allowing increased blood supply and apparently a darker color and desquamation; or the desquamation may have resulted from the effects of the arsenic, as such is common with or without erythema.

The atrophic condition of the skin on the dorsum of the hands and outer surfaces of the legs is no doubt due to the effects of the disease, although in one stage of arsenical intoxication these changes are present.

The small, more darkly pigmented spots on the inner surfaces of the legs have been reported in both conditions. The stippling of the skin over the shoulders and buttocks is due to the effect of the arsenic producing atrophic changes. Many of the cases in the Manchester epidemic showed similar marking. Nothing of the kind has been reported in connection with arthritis deformans; however, larger irregular patches of absence of pigment gradually shading into pigmented parts are seen in improved cases.

The general thickening of the epithelial layer of the palms of hands and soles of feet is present in both conditions. No doubt this has been influenced by arsenic as it has increased in the past two years, producing an appearance of ichthyosis. The unnatural perspiration is equally common in both.

The redness and hypertrophy of the sudoriparous glands of the palms of the hands, back of shoulders and soles of the feet, with a condition resembling corneal horns on the heels and on the balls of the toes, is due entirely to the stimulative action of the arsenic.

The eczematous condition which appeared on the scrotum is common in affection of the skin by arsenic, as is also the puffiness of the lids, suffusion of the conjunctivæ, and the irritability of the alimentary canal.

The notching of the nails may have resulted from disturbance in nutrition in either case.

In the recent English epidemic arsenious acid is reported to have caused enlargement and tenderness of the metacarpal joints. This explanation could not be applied here, as these joints were all affected before and it is only of interest in showing the marked likeness in these two conditions.

Surgical Spinal Analgesia in Mexico.—Mexican surgeons long ago adopted this method of anesthesia, and Villareal, Urrutia and others use it frequently for operations on the legs, genital organs and urinary passages, as well as for various gynecologic and abdominal operations and in obstetrics. A recent thesis on the subject by J. Adalid y Castillo is published in the *Revista Medica*, vol. xv, No. 21, Nov. 15, 1904, with numerous illustrations. He mentions several minor technical points worth noting. If the needle is inserted with the bevel held horizontally the fibers of the dura mater, being longitudinal, are severed and a much larger hole results than when the bevel is held vertically. Another point is to caution the patient not to make the slightest movement while the needle is in place. If he bends his trunk in any direction the fibers of the dura mater are lacerated and the hole enlarged. The Mexican surgeons consider it important to leave the needle in place for ten or fifteen minutes. This plugs the hole made in the dura mater, and prevents the escape of th anesthetic fluid into the surrounding tissues, which mishap is responsible for the accidents observed. A stopcock in the nozzle of the syringe prevents any reflux of the fluid, and also allows the body of the syringe to be detached and removed as soon as the needle is in place. They know of no contraindications to spinal analgesia for subjects over 12, except the disadvantage of having certain patients witness or be conscious of the procedures.

Pernicious Anemia.—From an elaborate study of the subject and of the theories advanced by various authorities Syllaba offers the following explanation of this disorder. His communication appeared in the *Archives Gén. de Méd.*, cxciv, No. 38, 1904. There are certain toxemias the first and immediate effect of which is an abundant destruction of the red corpuscles occurring in part in the general circulation, and in part, perhaps, in certain organs. This hemocytolysis as such incites the hemopoietic organs to a powerful reaction and a deadly war occurs between the exaggerated hemolytic and the reinforced hemopoietic processes. If the toxic agent is the least active the destruction of red corpuscles is less intense and the hemopoietic organs are sufficient to restore the destroyed elements. This is what occurs in bronzed diabetes and in similar conditions. There is here no grave anemia, but sometimes a slight plethora and the chief, if not the only, proof of the exaggerated hemolysis is the pigmentation. If the toxic agent is more active the destruction of the reds is also more intense, and hemopoiesis, even when stimulated, is insufficient to repair the damage. There results a grave anemia as the principal symptom of the syndrome of Biermer. The relationship of this syndrome with bronzed diabetes and similar conditions is proved by the analogies which exist in the visceral pigmentations. Moreover, although the hemolysis always prevails in Biermer's disease, there are nevertheless from time to time, periods in which the hemopoietic activity appears to prevail temporarily. This occurs especially after marked exacerbations of the hemolytic process, during which also the irritation of the hemopoietic organs, caused by products of the destruction of the corpuscles, attains its highest degree. With arsenical treatment we imitate the natural process. We artificially increase the destruction of red corpuscles, already rather intense, so as to stimulate the hemopoietic organs into a salutary reaction. He compares these processes with those occurring in the overtaxed heart, its compensatory hypertrophy, and the stimulation of respiratory activity by obstruction of the air passages. Each pathologic process like that in the blood-producing organs excites a compensatory stimulation to save the organism. The automatic regulation of the composition of the blood by way of hemocytolysis is, therefore, a tetelogic phenomenon of the first order.

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PHYSIOLOGY OF UTERINE CONTRACTIONS.

Our readers are probably familiar with the observations of the Russian physiologists on the possibility of "revival" of the activity of the mammalian heart, by transfusion through its vessels of nutrient saline solutions even after astonishingly long periods of quiescence or "death." These experiments formed the basis for most remarkable newspaper articles on "resurrection of the dead," at the time of their publication.

In Pawlow's laboratory experiments of similar nature on the uterus have recently yielded interesting if less sensational results.[1] By removing the uterus and its adnexa, together with the broad and round ligaments, the cellular tissues, and a piece of the aorta and vena cava of rabbits, after having previously washed out all the blood with a saline solution (Locke's), it is possible to secure the organ in a condition for study independently of the action of the central nervous system. When such a uterus is kept in a specially prepared moist chamber apparently normal contractions take place independently of any external stimuli; a short period of rest follows each period of contraction, and so on alternately for an hour or more. This automatic contractility is observable in the virgin uterus, as well as in multiparous animals, but the sensitiveness of the uterus is greater and its action more vigorous and prolonged in pregnancy. Furthermore, in organs removed toward the end of pregnancy the entire birth mechanism can be observed to occur in all its details, independently of the central nervous system. The vagina contracts independently of the uterus, and the broad and round ligaments appear to take an active part in uterine contractions, particularly in parturition. After excision of such a uterus it could be "revived," i. e., made to resume contractions, even after from twenty-four to forty-eight hours, if kept in a cool vessel of saline solution. This merely means that the uterine muscle-cell does not lose its power of contractility when kept without nourishment for this length of time, provided that disintegration, which probably is a result of autolysis of the cells, is prevented by keeping it at a low temperature at which the ferments are inactive.

Pharmacologic observations on such isolated uteri show conclusively that the action of such drugs as ergot is entirely local and not through nervous influences. Sphacelinic acid causes exactly similar changes in the isolated organ as it does in the uterus of the intact animal, as shown by tracings of the contractions, but it has no effect on the blood vessels of the isolated organ. Hydrastinin produces exactly similar results. Adrenalin, even in the most dilute solutions, acts more energetically on the uterus, whether isolated or intact, than those remedies which are usually regarded as specific for that organ, according to Kurdinowski, while it energetically constricts the blood vessels even of the isolated uterus. Narcotic poisons, such as chloral hydrate and alcohol, have relatively little influence on the isolated uterus. As the phenomena observed in these experiments on the uterus are also seen in smooth-muscled organs generally, the degree of independence of smooth-muscle tissue from outside nervous influences seems well established.

ZOMOTHERAPY IN TUBERCULOSIS.

About four years ago, Richet published his observations on tuberculous dogs which had been fed on large quantities of raw meat or raw meat juice. He concluded that the disease can be arrested, in the great majority of instances, if a sufficient quantity of meat is given and hazarded the opinion that, in all probability, a similar method of treatment would be of value in human beings. A few months later, Héricourt published his observations on twenty-five cases of human tuberculosis. He showed that in the first two stages of the disease, the treatment is often of great benefit, but suggested that it should be used with caution in the third stage, especially when there is evidence that the liver is performing its work imperfectly.

Recently Philip[1] has published the results of his experience with this form of treatment, together with the results of some work on the effect of zomotherapy on metabolism which was done by Galbraith under his direction. Galbraith's observations were made on healthy and on tuberculous patients, in whom the nitrogenous value of the food was maintained as nearly constant as possible throughout. The experiments showed that under raw meat feeding there was a marked increase in nitrogen retention, provided that the heat value of the nitrogen in the diet exceeded the actual requirements of the individual per kilo of body weight. They also showed improved intestinal metabolism and a marked digestive leucocytosis. These results were probably not from overfeeding *per se*, for if this were the case cooked meat should have had the same effect. Philip thinks that there is probably some enzyme in the raw meat which is destroyed by heating, and that this explains the difference in action between raw and cooked meat.

The results obtained by Philip were encouraging, even, in some cases, in the third stage of the disease;

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[1] A summary of this work by Kurdinowski in English will be found in the Dublin Journal of Medical Sciences, December, 1904. Also in The Journal, xliii, page 1586.

[1] Practitioner, January, 1905. Abstracted at length in The Journal, p. 663, No. 17.

but the best results were obtained in the earlier stages. The patients almost without exception improved in general appearance, there was a gain in weight of from 10 to 30 pounds, and the new-formed tissue was firm and not largely in the form of fat, as is the case with some other forms of overfeeding. There was an increase in muscularity, and at the same time a decrease in the myotatic irritability which is so commonly present in tuberculosis. The pulse rate generally slowed and the blood pressure increased, while the blood itself showed a great increase in hemoglobin and a more marked digestion leucocytosis. The temperature was favorably influenced, the digestive processes proceeded with greater ease, and the local signs regressed, and in some cases disappeared.

Some recent work of Richet[2] throws some light on the philosophy of this form of superalimentation. By means of experiments on dogs he shows that the amount of nitrogenous material required in the food during the first stages of tuberculosis is from 25 to 100 per cent. more than is required by the normal individual. If there is a loss of weight this shows that the calories excreted are greater than those taken; if there is a gain in weight the contrary is the case. In dogs with tuberculosis, two dietary considerations are necessary, food enough to produce at least 12 calories per cubic decimeter of surface, and at least 15 centigrams of nitrogen per cubic decimeter of surface. It is probable that similar dietary considerations are necessary in tuberculous human beings.

THE VALUE OF SUSPENSION OF DEAD TYPHOID BACILLI FOR THE WIDAL REACTION.

The reliance which the profession in general places on the Widal reaction is shown by the fact that in many states the country practitioner is able to have blood from suspected cases tested by a state laboratory, and frequently avails himself of this opportunity. In many large cities a similar condition exists. In the case of the country practitioner, the distance from the laboratory frequently entails a considerable loss of time before a report is received. It is obvious, too, that under certain other conditions, such as those which prevail on shipboard, or with an army in the field, the ordinary method of making the Widal test will not avail. It will be remembered that in the early history of the Widal reaction it was proposed to make the test a macroscopic one, but this form of the reaction, though perfectly feasible, was subsequently abandoned because the microscopic test was found to be more delicate. It was further noted by Widal himself that in cultures of the typhoid bacillus killed with formalin, clumping took place with typhoid sera almost as well as if living cultures were used. These facts were not put to practical use until late in 1903, when Ficker proposed the use of dead cultures, and the macroscopic instead of the microscopic method, when the circumstances prevented the use of living cultures. The fluid containing the suspension of dead typhoid bacilli Ficker called the diagnosticum, and since he published his original article a number of reports bearing on the value of the procedure have been published.

The important questions to be determined are whether the diagnosticum is to be compared in accuracy with the ordinary method of performing the Widal reaction, whether the procedure is simple enough and the results obvious enough to be available to one without a special laboratory training, and whether the test fluid will keep for a reasonable length of time under varying climatic conditions. These queries have recently been answered in three articles by Selter, Flatau and Wilke, and Eichler.[1] The studies of Selter, and those of Flatau and Wilke, had to do, for the most part, with the determination of the reliability of the test. The studies of Selter were conducted during a small typhoid epidemic, during which he was able to obtain blood from cases in various stages of the disease. He came to the conclusion that the use of the diagnosticum was as satisfactory as the ordinary Widal reaction during the height of the disease, but was not so reliable early in the disease and during convalescence. He states that he considers the diagnosticum to be a valuable aid to our methods of diagnosis in typhoid fever, but that some writers go too far when they state that it will take the place of the Widal reaction, as it does not appear till later and disappears earlier. Flatau and Wilke give a more favorable account of the value of the diagnosticum. In their series of cases it gave a positive result on every occasion that the Widal reaction gave a positive result. It also gave a good reaction in some cases as long as nine years after the attack of typhoid. The researches of Eichler bearing on the keeping properties of the solution, especially in tropical countries, showed that the fluid was good for as long as nine months.

The net result of these observations—and preceding ones agree with them in the main—is to show that dead cultures of the typhoid bacillus used in conjunction with the naked-eye method of observation, are of great practical value in the diagnosis of typhoid fever. Inasmuch as the use of this method requires neither a microscope nor an incubator, and does not necessitate the keeping on hand of a fresh typhoid culture, it might be of great value in remote country districts, on shipboard and in the field.

TRUTH AND POETRY CONCERNING URIC ACID.

VII.

Thus far in the discussion of uric-acid formation we have gone on the general assumption that uric-acid excretion is an index therefor. We have followed this plan in order not to make the discussion too complex, but it must now be pointed out that uric-acid formation and uric-acid excretion do not always go on parallel to each other. Uric-acid excretion depends not on uric-acid formation alone, but probably on two other conditions: First, on retention due to the difficult solubility of the substance; second, on the *decomposition of uric* acid, once it has been formed inside the body.

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[2] Revue de Médecine, vol. xxv, No. 1.

[1] Münchener med. Woch., No. 3, 1905.

While uric acid is a difficult soluble substance and is easily precipitated from solution, under normal circumstances the factor of retention from this cause probably influences uric-acid excretion very little. Haig, it is true, in order to bolster up his theoretical conceptions when the facts contradicted them, has made a great point of uric-acid retention. He brings forward no convincing evidence in favor of his view, and other investigators do not support him. In disease, on the other hand, there may be marked retention of uric acid and precipitation in the tissues; under these conditions it would be fallacious to suppose that the amount of uric acid excreted is an index to the amount formed. The literature on gout shows how prone physicians are o fall into this error, and the conflicting theories of gout have largely arisen as a result.

Much more important under normal conditions is the fact that a certain amount of uric acid is destroyed in the body after it is formed. We have known for more than fifty years[1] that most of the uric acid fed as such is transformed in the body to urea, and recently this fact has been established beyond doubt.[2] Different animals behave somewhat differently in this regard, dogs converting more of the uric acid to urea than rabbits.[3] Newborn dogs, on the other hand, do not decompose the uric acid to any extent.

Since uric acid introduced as such is largely destroyed in the organism, it was natural, reasoning by analogy, to think that uric acid formed as an intermediary product of metabolism in the body, should undergo a similar decomposition. Many researches have been made to test this point, with conflicting results, Loewi denying such a decomposition, Burian and Schur maintaining it. So far as we can judge, the latter investigators are right. One experiment of theirs makes their idea very probable. On injection of a given amount of uric acid into an animal, the same amount of uric acid is excreted in the urine as when equivalent amounts of purin bases are given to the same animal. either subcutaneously or by the mouth. The most plausible explanation seems to be that all the purin bases are converted into uric acid, and that a part of this is destroyed just as when uric acid itself is administered.

According to Burian and Schur, it is possible to calculate from [illegible]c acid excreted in twenty-four hours, d[illegible]ion, th[illegible]

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the amount which has been formed during this time. Their rule is to multiply the amount excreted by a fraction whose numerator is 100 and whose denominator is that percentage of the purin nitrogen taken in which is given out as uric-acid nitrogen. Reducing this fraction we obtain the so-called integrative factor; in the dog it is 22; in the rabbit, 6; in man, 2.

Besides having proved the decomposition of uric acid of exogenous origin in this way, Burian and Schur believe that they have shown that a similar fate awaits the purin of the uric acid of endogenous origin. Thus the blood of dogs on a purin-free diet, after extirpation of the kidneys, contains no uric acid. This might mean either that the kidneys form uric acid, or that the uric acid in the blood is in a combined state, or that under the conditions mentioned the uric acid formed is destroyed. Now, on excluding the liver from the circulation in such animals, uric acid appears in the blood at once. Thus Burian and Schur believe that in nephrotomized dogs, and probably also in normal dogs, the liver destroys the uric acid of endogenous origin. Further experiments by the same investigators, less well founded, we fear, indicate that the human kidney, unlike the dog's, has the power of destroying uric acid, and that the human liver is far less capable of decomposing uric acid than is that of the dog. Burian and Schur reach the general conclusion that the uric acid of endogenous origin is always destroyed, and therefore that uric acid is to be regarded not as a terminal product of metabolism of the purin bodies. but as an intermediary product of that metabolism. We present these conclusions, but are as yet unable to accept them as proved.

The question now arises: What is the exact nature of the decomposition of uric acid in the body, and what are the products of its cleavage? It has been shown by laboratory experiments that uric acid can be broken up *in vitro* in at least three different ways: First, on treatment with concentrated hydrochloric acid, under special conditions, it yields glycocoll, carbon dioxid and ammonia. Second, on treatment with nitric acid it yields first alloxan and later parabanic acid and carbon dioxid; the parabanic acid then goes to oxaluric acid and later still to oxalic acid and urea. Third, on treatment with permanganate of potash, uric acid is split to allantoin and carbon dioxid, and the allantoin on oxidation yields urea and oxalic acid.

Physiologic chemists have been interested in finding out whether uric-acid decomposition in the body follows any one of the above three routes. or travels along a path of its own. Urea, glycocoll. oxalic acid and allantoin have all been demonstrated in the animal body, and all have at one time or another been supposed to be related to the decomposition of uric acid. It will be noted that no matter which of the three modes of decomposition mentioned above were followed in the

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1 foun[illegible]
Also

ntc: Ueber Veränderungen, welche nament-
Uebergang in den Harn erfahren, Ann.
335, 1848.

Harnsäure im Blut und ihre Bedeut-
ht, Wiener klin. Rundschau, x, 1896,

ber die Ausscheidung der Harn-
h., cxliii, 1896, p. 337.

body, urea would always arise, since in the second and third methods urea is formed directly and by the first method the glycocoll would burn to urea; so the evidence of an increased urea formation after feeding uric acid affords no clue as to the way in which the uric acid breaks down. It would take too long here to review in detail the many experiments which have been made to settle this question, but it may be stated that thus far it has not been demonstrated with certainty that either oxalic acid or allantoin is produced in the animal body as a result of the decomposition of uric acid. It has been definitely proved, however, that glycocoll arises in man and animals as a result of the cleavage of uric acid.[4] It seems probable, therefore, that when uric acid is decomposed inside the body it undergoes cleavage by the first method described; that is to say, it is split into glycocoll, carbon dioxid and ammonia. The possibility of the occurrence of decomposition by other methods, however, is by no means positively excluded.

Just how the cleavage is brought about is a point which is beginning to be studied. Croftan,[5] as a result of a series of careful experiments, suggests that an albumose-like body loosens the affinities of the uric-acid molecule, and that a nucleo-proteid, acting as an oxygen carrier, facilitates the subsequent oxidation. At any rate, there seems to be a catalyzer concerned in the process that is destroyed by heat.

We have next to consider the exact localization in the body of the processes of uric-acid formation and decomposition. To the work which has been done on this subject we hope to refer next week.

TESTIMONIALS.

A booklet recently issued by a proprietary medicine firm contains interesting subjects for reflection. About a score of "testimonials" are presented, and those from a good-sized western city are peculiarly noteworthy. Certificates from two physicians in good standing alternate with certificates from three notorious quacks. The position of these physicians is certainly neither enviable nor comfortable, but it is an admirable object lesson to those who are tempted at times to write a testimonial.

COMPULSORY VACCINATION CONSTITUTIONAL.

One of the stock arguments of the antivaccinationists has been that compulsory vaccination is contrary to the Constitution of the United States. They have prated of "personal liberty," and have made dire threats of what they would do. In some states, weak-kneed courts have encouraged them in their delusions at the expense of public health and at the cost of the lives of the innocent. In Massachusetts especially they have fought compulsory vaccination, finally carrying the fight to the highest tribunal. And they have lost! February 20 the Supreme Court of the United States, speaking through Mr. Justice Harlan, held the Massachusetts compulsory vaccination law to be constitutional on the ground that in the protection of the health of the community compulsory vaccination may be exercised by the state as a police regulation. So those boards of health that have been timid in the past may now take courage. Proper state legislation for the abolishment of smallpox is made possible without any fear as to the constitutionality of such action.

POLITICIANS WIN TEMPORARILY IN OHIO.

It is reported that the governor of Ohio has directed the board of trustees of the Ohio Hospital for Epileptics to ask for the resignation of the superintendent, Dr. A. P. Ohlmacher. By those who knew the strength and methods of the political ring that sought his removal, this action is received without surprise. It is not to the credit of the governor that he should take his action without waiting to investigate the superintendent's specific charges that some of the subordinate officers of the hospital have been conniving with outside politicians to defraud the state through the sale to the institution of many articles at prices above their real value. Dr. Ohlmacher has publicly submitted for investigation the items of graft, and has asked a public investigation of all the institution's affairs before his departure on March 15. By complicating the issue, the time-worn method of their kind, the grafters have won. It is announced that the post will not be filled before July 1. The medical profession of Ohio should use every influence to force the trustees to choose for the place another man as capable and as uncompromising in his attitude toward graft as has been Dr. Ohlmacher.

A MARKED DECREASE IN TUBERCULOSIS MORTALITY.

One of the achievements of the International Cigarmakers' Union that redounds to its credit is the fact that it has reduced the death rate from pulmonary tuberculosis among its members from 51 per cent. to 24 per cent. This reduction has taken place since 1888, or two years and eight months after the eight-hour law went into effect, and during the same period the length of lives of the members has been increased from 31 years, 4 months and 20 days to 47 years, 3 months and 12 days. The latest government statistics place the number of cigarmakers who die from pulmonary tuberculosis at 62 per cent., and places them second in the list. The government figures, however, include both union and non-union workers, and as the death rate from pulmonary tuberculosis of union men is 24 per cent., it follows that the death rate of non-union workers is even greater than 62 per cent., or, approximately, 76 per cent. The probable reason for this difference in mortality from tuberculosis between union and non-union cigarmakers is to be found in (1) shorter hours, (2) better sanitary conditions, (3) better treatment, (4) more independence, (5) better education, and (6) better wages. Such excellent achievements as this deserve the approbation of medical men, and the emulation of laborers in other employments which tend toward impairment of health.

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[4] Wiener, H.: Ueber das Glycocoll als intermediäres Stoffwechselprodukt, Arch. f. exper. Path. u. Pharmakol., xl, 1897, p. 313; Ueber Zerzetzung und Bildung der Harnsäure im Tierkörper, ibid., vol. xlii, 1899, p. 375.

[5] Croftan, A. C.: Synopsis of Experiments on the Transformation of Circulating Uric Acid in the Organism of Man and Animals, Med. Rec., New York, lxiv, 1903, pp. 6-11.

INSANE SELECTION OF INSANE HOSPITAL SITES.

The newspapers, with some political motives, are severely criticising the New York State Lunacy Commission for purchasing a hospital site, at a cost of $42,000, which will require the expenditure of $30,000 more for a water supply. *Charities* does not spare severe words in its discussion of several hospital sites in New York. It seems that a committee of the New York Assembly has been appointed to investigate the last blunder, the purchase of the Baker farm at Comstock, Washington County. The editor remarks that it would be extravagant for the state to receive the site as a gift, in view of the necessity for all time to come of hauling supplies and of transporting patients and their friends from markets and centers of population to this out-of-the-way spot. In the interests of economy, the Buffalo *News* recommends putting the Baker farm on the market and purchasing a site elsewhere, rather than trying to utilize this undesirable piece of property. Reference is made to the blunders in the location of the Willard, the St. Lawrence and the Gowanda State hospitals. Out-of-the-way sites were chosen, and the opportunity for viewing these blunders in the light of later experience would appear to make this latest blunder inexcusable. The criticisms of partisan papers may not always be depended on, but the arraignment by the editor of *Charities* is a severe indictment of the New York State Lunacy Commission.

THE NATURE OF THE LEISHMAN-DONOVAN BODIES.

In a previous editorial[1] we called attention to these peculiar bodies found in the splenic blood of cases of kala-azar and so-called dum-dum fever. At the time of their discovery they were supposed to be an entirely new form of parasite, since they did not correspond to any of the known forms. We believe it was Leishman who suggested at this time that they represented a form of trypanosoma, but this idea did not gain foothold, as it was discountenanced by such an eminent authority as Laveran. Later Rogers, and still more recently Chatterjee, showed by cultivation that the parasite was, in fact, closely allied to the trypanosomes. In his last communication, Chatterjee[2] shows that if the splenic blood from an infected case is introduced into a 5 per cent. solution of citrate of sodium there develop in a few days bodies which closely resemble the trypanosomes. The Leishman-Donovan bodies gradually become more elongated, the micronucleus moves to one end of the body, and a thick flagellum is formed at this end. The organism differs from the true trypanosomes in the fact that the posterior flagellum is only rudimentary, as is the undulating membrane. This places the organism in a class with the genus *Trypanopsis*, of which one or two other members have been described.

THE PROPHYLACTIC AND CURATIVE VALUE OF DIPHTHERIA ANTITOXIN.

The marvelous saving of life that has been effected by means of the prompt and vigorous employment of antitoxin in the prevention and treatment of diphtheria is one of the triumphs of scientific medicine. That antitoxin has reduced the mortality in this disease enormously is an established fact, and we have become so convinced of this that nowadays little is said regarding it. However, it is well occasionally to call attention to this fact, and to emphasize its importance. Last week we published an abstract of a paper by Dr. Franklin Royer,[1] read before the Philadelphia County Medical Society, in which the author presents some convincing statistics by making a comparison of the mortality between the number of cases of diphtheria recorded in the larger cities of this country, by decades, before and after the introduction of the antitoxin treatment. These statistics are an added proof that since antitoxin has been used there has been a marked decrease in the number of deaths from diphtheria. By the use of antitoxin, a disease, which a few years ago was one of the most deadly and dreaded, has been brought under control. and is now one of the simplest with which the physician has to deal. The former mortality of from 30 to 50 per cent. has been reduced exactly one-half, and there is reason to believe that, if antitoxin were administered early enough and in sufficiently large doses, this mortality might be reduced still further.

INTERNATIONAL EXCHANGE OF PROFESSORS.

The proposed international exchange of professors between the United States, Germany and France has been discussed with much interest recently, and we understand that one university in this country has taken the initiative in such an arrangement with a German university. There is much that is commendable in the plan. It enables students who have not the means for study in foreign universities to profit by the teaching of men who are recognized as authorities in their subjects. The public would be benefited, not only through the effects of the spread of knowledge which come to them indirectly, but also through the influence exerted on the press by the teachings of such men, and thus useful knowledge would be popularized. Intimate contact between men of different nationalities influences public sentiment and increases friendly feeling between nations. Few professors would fail to appreciate the opportunity of gaining a larger audience and of greatly extending their influence in this way; this in itself is one of the greatest rewards of an academic career for many men who choose to teach. The professors themselves would also be broadened by contact with fellow-workers of a different nationality, and would almost certainly become more valuable in the work of their home university. In the past it has been customary for ambitious students to go to the sources of knowledge, and this has been specially true of medical students. The number of American medical students who have availed themselves of the opportunities for study in the clinics, laboratories and lecture halls of leading foreign universities has always been great and the number seems to be increasing in spite of the fact that there has recently been such great improvement in the methods of teaching and the opportunities for medical study at home.

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[1] The Journal A. M. A., Aug. 6, 1904.

[2] Lancet, Jan. 7, 1905.

[1] The Journal, Feb. 18, p. 568.

AMBIDEXTERITY.

The faculty of being able to use the right and left hands interchangeably has long been considered desirable in surgeons, and by some has been urged as a desideratum for all engaged in work requiring manual dexterity. In England the matter has been carried so far that an "Ambidextral Culture Society" has been formed, which distributes considerable literature on the subject. At first sight such a faculty seems eminently desirable, and undoubtedly is so in a limited number of callings. In any attempt to supersede a natural and instinctive manner of doing things it is well to dispassionately review the why and wherefore of the process before suggesting sweeping changes, and it is doubtful whether the Ambidextral Culture Society has done this. Harman[1] has recently sought to explain why we are naturally righthanded, and to show that our apparent righthandedness is in reality a form of ambidexterity. He suggests that our righthandedness comes down to us from the period when human ascendency was dependent on physical prowess, and depends on the knowledge of the vulnerable heart region. Under such circumstances, he suggests, man learned to use his right arm as a fighting arm and his left arm as a shield arm. This tendency has been inherited, and is seen to-day in the use of the right hand as the active agency, while the left is used as a supplementary assistant. Harman's argument is that the supplementary work performed by the left hand is, in its way, just as important as the active work performed by the right. In other words, while we are not ambidextrous in the strict sense of the word, we are eminently gifted with co-ordination of bimanual action. This being the case, it would seem undesirable to advocate any widespread training such as the Ambidextral Culture Society suggests.

CONGENITAL MYATONIA.

Myatonia—as opposed to myotonia or motor spasm—is the term applied by Oppenheim to a condition of deficiency or absence of muscular tone that he has observed especially in children during the first year or two of life. It may involve the entire body or it may be confined to certain portions, the affected parts being flaccid and motionless. The tendon-reflexes are diminished or abolished, and the involved joints are unduly movable, while active motion is impaired. The muscles supplied by the cranial nerves usually escape, as does also the diaphragm. The affected muscles are flaccid, soft and thin, and the electrical reactions are diminished quantitatively. Intelligence, sensibility and the special senses do not suffer, and the functions of the sphincters are preserved. The condition appears to be of congenital origin, and it is thought to be due to an arrest in the development of the muscles. It differs from progressive muscular dystrophy in the absence of a familial tendency and in a failure of the symptoms to progress; from acute anterior poliomyelitis in its congenital origin and in the absence of true muscular atrophy, of degenerative electrical reactions and of changes in the ganglion cells of the anterior horns of the spinal cord; from amaurotic family idiocy in the tendency to improvement rather than to a fatal termination, in the absence of changes in the eyegrounds and of gross pathologic alterations in the nervous system. A case of congenital myatonia with necropsy has recently been reported by Dr. William G. Spiller.[1] The patient was a male child, 22 months old, born without complication at term and breastfed. Nothing was noticed until the age of 5 months, when he did not seem normally to take notice of things about him. He was at no time able to hold objects in his hand. He was fairly well developed, and the muscles appeared not to be wasted, though soft and flabby. Muscular power was diminished and the knee jerks and the heel jerks were absent. The legs could be overextended on the thighs. The child was able to sit unaided only for a minute or two, though the head would fall slightly forward. He had always been unable to stand. Death resulted from some intercurrent febrile disorder. On postmortem examination, the absence of muscular rigidity was striking, the hypotonicity being not less than during life. There was an excess of subcutaneous fat, and the muscles were pale, flabby and small in size, and they contained a large amount of fatty connective tissue, with a considerable increase in the nuclei. The muscle-fibers were reduced in size, with well-preserved transverse striation and less distinct longitudinal striation. The brain, the nervous system, the cord and the peripheral nerves were found normal, both macroscopically and microscopically. The essential lesion would thus appear to consist in an arrest in the development of the muscle-fibers, and, accordingly, some measure of improvement may be hoped for in cases subjected early to appropriate treatment, including, in addition to a nutritious diet, passive and active exercise and electrical stimulation of the affected parts.

Medical News.

CALIFORNIA.

Unlicensed Practitioner Fined.—"Dr." Annie D. Howe, Oakland, was fined $300, January 30, for practicing medicine without a license, and paid the fine.

Personal.—Dr. Thomas N. Sample, Fresno, has been elected physician of Fresno County.——Dr. P. C. Campbell, Point Richmond, has been appointed a member of the governor's staff.

Anti-Vaccination Bill Goes to House.—Senator Leavitt's anti-vaccination bill, after a strenuous fight, was passed by the senate, February 8, by a vote of 22 to 15, and has now gone to the assembly.

Automobile Sterilizer.—San Francisco is to have an automobile sterilizer weighing four tons, with a maximum speed of five miles an hour, and to cost $4,000. The disinfecting compartment is large enough to hold all the bedding of the household.

CONNECTICUT.

Emergency Hospital.—Dr. John W. Johnson, Torrington, opened on February 11 an emergency hospital with a capacity of two beds, later to be increased to four.

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[1] British Medical Journal, Jan. 7, 1905.

[1] University of Pennsylvania Med. Bull., January, 1905, p. 342.

Personal.—Dr. Elmer F. Blank has been re-elected president of the Bridgeport Board of Health.——Dr. Samuel D. Otis, Meriden, slipped on the ice and fell, January 30, dislocating one knee.——On February 1 Dr. George L. Beardsley entered on his two years' duty as health officer of Derby.

Bequests to Grace Hospital.—The Probate Court has decided that $10,000 shall be paid to Grace Hospital from the estate of the late Charles D. Hall, and that, on the death of Miss Amelia M. Stannard, who holds a life interest in the estate, $30,000 from the estate of the late Mrs. Sylvia C. Hall will be available for the hospital.

January Deaths.—During January 1,402 deaths were reported, 141 more than in December, 38 less than in January, 1904, and 35 more than the January average for the five previous years. The death-rate was equivalent to an annual mortality of 17.3 per 1,000. Pneumonia caused 189 deaths; diseases of the nervous system, 168; heart disease, 135; consumption, 134; influenza, 66; violence, 64; bronchitis, 39, and diphtheria, 37.

DISTRICT OF COLUMBIA.

Government Clerks Must Pay Their Physicians.—A bill has been introduced in the house requiring government clerks to pay their debts, including medical fees. The measure provides that whenever any civil service employe of the United States shall, after three demands in writing, refuse to pay an indebtedness for house rent, fuel, groceries, household necessities, clothing, physicians' services, etc., "consistent with such employe's social position in life," provided the indebtedness shall have been contracted after entrance into the service, such refusal shall be cause for immediate suspension. Suspension shall continue until settlement is made. If a satisfactory settlement is not made within three months, the employe "shall be stricken from the rolls as incompetent and unworthy."

GEORGIA.

Wesley Hospital Assured.—The Christmas offering of more than $27,000 made by Georgia Methodists for the benefit of Wesley Memorial Hospital, Atlanta, has assured the success of the enterprise. Work on the building will be commenced in a few weeks.

Personal.—Dr. Charles F. Benson has been re-elected president of the Atlanta Board of Health.——Dr. William L. Gilbert, Atlanta, has been appointed surgeon of the First Cavalry, Georgia State Troops, with the rank of major, vice Dr. William W. Owens, Savannah, resigned.

Medical Training School Opens.—The Southern Medical Training School, designed primarily for the training of medical missionaries, but also offering instruction to students of medicine and nurses, was opened February 2 in Atlanta. Dr. J. McFadden Gaston is chairman of the trustees of the institution.

Ill and Injured.—Dr. Samuel A. Visanka, Atlanta, has been seriously ill with typhoid fever.——Dr. James C. Fussell, Fitzgerald, was injured, February 8, in a runaway accident.——Dr. Henry W. Clements, Lenox, while hunting, February 3, shot himself through the left foot, necessitating the amputation of two toes.

ILLINOIS.

Hospital Sunday in Evanston.—On February 12 nearly $4,000 was contributed by the churchgoers of Evanston for the benefit of the Evanston Hospital.

Fire Destroys Office.—In a fire in East St. Louis, February 10, the office of Dr. James W. Rendleman was destroyed, and also the furniture and instruments of the late Dr. A. C. Corr of Carlinville, which had not yet been removed.

Early Diagnosis of Tuberculosis.—The State Board of Health has issued for distribution to physicians throughout the state a circular on "The Early Diagnosis of Tuberculosis," which includes in concise and systematic form all the information on the diagnosis of the disease to be obtained from a review of American and foreign medical literature.

Aerial Disinfection.—The State Board of Health is preparing to make an elaborate series of investigations on aerial disinfection by formaldehyd to ascertain definitely the value of a process recently recommended by the State Board of Health of Maine. This process is simple, and requires no lamp or other heat which might be a source of danger from fire. It consists simply of pouring formaldehyd solution on permanganate of potash, the only requirement being that the formaldehyd solution be of good and reliable quality and used in proper proportion to the permanganate of potash.

Chicago.

Antispitting Crusade.—Acting on orders from the chief of police, violators of the antispitting ordinance were arrested February 20. On the first day 171 arrests were made.

Library Bequeathed to Rush.—By the will of the widow of the late George P. A. Healy, the fine medical library collected by the late artist is bequeathed to Rush Medical College.

Deaths of the Week.—During the week ended February 18, 630 deaths were reported. Pneumonia led the death causes with 136; consumption caused 73 deaths; heart diseases, 45; Bright's disease, 36; bronchitis, 35; violence 34, and smallpox 4.

Many Deaths.—A total of 426 deaths was recorded during the first four days of the week—a total which represents an annual death rate of 30.2 per 1,000. This is a figure not reached before since 1866, and the officials were apprehensive of a record-breaking week. Fortunately, the returns fell from this daily average of 106.5 to an average of 68 during the last three days, and the mean mortality rate of the week was only 16.50, as compared with 17.61 for the corresponding week of last year, and of 16.83 for the average February death rate of the previous decennium. There was a marked reduction in the reported deaths from the contagious diseases of childhood, from influenza and from typhoid fever, as compared with the preceding week. The respective totals of these deaths are 20 for the week and 38 for the week ended February 18. Laboratory indications point to a continued decrease of diphtheria; only 1 out of 32 cultures showed the presence of the diphtheria bacillus, while during the week before it was found in 7 cultures out of 34. On the other hand, the influenza bacillus was found in 13 of the 32 cases of suspected diphtheria, and the bacteriologists believe that influenza is frequently diagnosed as diphtheria.

INDIANA.

Aimed at Patent Medicine Men.—A bill has been introduced by Senator Mountz which provides that it shall be unlawful to sell or to offer for sale any proprietary medicine, unless the correct formula shall be printed on each package. The fine for violation of this law is elastic, ranging from $5 to $1,000.

Personal.—Dr. John F. Robertson, Indianapolis, has been appointed assistant deputy coroner of Marion County.——Dr. C. Homer Stalker has resigned as surgeon of the Indiana State Soldiers' Home.——Dr. Samuel M. Ried, Muncie, is critically ill.——Dr. Noah S. Wood, Anderson, is seriously ill.——Dr. John N. Parr, Jolietville, who has been ill with influenza, has had a relapse and is in a critical condition.——Dr. Francis M. Warford, Cicero, is reported to be critically ill.

Verdict for Defendant.—In a suit in which Dr. David Gardner, acting health officer, Lehigh, Ind., and the City of Lehigh were sued by Cyrus Miller for the value of property destroyed through the alleged negligence and carelessness of the first defendant, the jury found for the defendants. In order to fumigate clothing of a smallpox patient residing outside the city limits, Dr. Gardner brought the clothing to a vacant store, and proceeded to employ disinfection by formalin vapor. The building took fire, and, with ten other buildings, was destroyed. The court decided that the physician had not been negligent, and that the city was not liable.

January Disease and Death.—In January influenza was the most prevalent disease; in December bronchitis was most prevalent. Pneumonia, which stood fifth in December, rose to second place in January and scarlet fever and diphtheria increased. The order of disease prevalence was: Influenza, pneumonia, tonsillitis, bronchitis, rheumatism, scarlet fever, diphtheria, typhoid fever, smallpox, measles, whooping cough and cerebrospinal meningitis. A decrease appears for smallpox, as compared with the corresponding month last year. The figures are: 480 cases, with 8 deaths in 38 counties in January, 1904, and 218 cases with 7 deaths in 27 counties in 1905. The cases of typhoid fever numbered 173, with 50 deaths in 41 counties. The same month of last year there were 182 cases, with 38 deaths in 53 counties. This is an increase by this comparison. Three hundred and ninety-six deaths from tuberculosis occurred, as against 361 in January, 1904. Of the deaths 177 were males and 219 females. Two hundred and sixty-seven, or 67.5 per cent. were in the prime of life period of 18 to 50. Of the females, 82 were mothers between the ages of 18 and 40, and they left 168 orphans under 12 years of age. Of the males, 20 were fathers in the same age period, and they left 48 children under 12. Consumption, therefore, in the one month made 216 orphans under 12, made 20 young widows and 82 young widowers, and invaded over 300 homes. Pneumonia caused 558 deaths; in the same month last year, 540. Deaths from all causes in January numbered 3,309, an annual rate of 14.7 per 1,000. In the same month of last year the number was 3,117, the rate of 14.8 per 1,000.

MARYLAND.

Baltimore.

Pneumonia Leads.—There were 43 deaths last week from pneumonia, only 21 being ascribed to consumption.

Book and Journal Club.—The Book and Journal Club of the Medical and Chirurgical Faculty has been in existence nine years, during which time it has collected and spent for the library about $4,300. In addition to paying for the binding of many journals, this money has purchased 57 journals yearly and 258 books. The faculty was able last year to appropriate only $1,200 to the expenses of its library. Of this $825 was spent in salaries, $288 in journal subscriptions, $300 in binding, $100 for typewriter and $75 for supplies, making the total expenditures $1,588 and leaving a deficit of $388. The club held its midwinter meeting February 15, when Dr. William Osler gave a reception to Dr. William W. Keen of Philadelphia, who spoke of his surgical reminiscences of the war, and Dr. William H. Welch spoke on medical literature of the Civil War.

Tuberculosis Dispensary Open.—The opening of the new dispensary for tuberculous patients at the Johns Hopkins Hospital, built through the generosity of Mr. Henry Phipps, took place February 21. The Laennec Society, founded some years ago by Dr. William Osler for the study of tuberculosis and of measures for its prevention, had charge of the ceremonies, holding its monthly meeting at the same time. Dr. Henry Barton Jacobs, the president of the Laennec Society, presided and delivered an address on "The Origin and Rise of Tuberculosis Dispensaries"; Dr. Herman M. Biggs of the City Health Department of New York spoke on "The Advantages of a Tuberculosis Dispensary," and Dr. William Osler spoke on "Tuberculosis in the General Hospital." The building is substantial and in keeping with the architecture of the other Johns Hopkins buildings. Its erection has consumed the entire gift of $20,000. It is a dispensary pure and simple and in no sense a sanatorium. Its chief purpose is to segregate tuberculous from other patients. Mr. Phipps himself attended the ceremonies. The dispensary will be under the charge of Dr. Louis V. Hamman and assistants. Patients will be admitted after March 1.

Johns Hopkins Hospital Work.—At the annual meeting of the board of trustees of the Johns Hopkins Hospital, February 14, the report of the superintendent was presented. During the year about $200,000 has been expended on improvements. This includes the erection of the new surgical ward and the tuberculosis dispensary; also reconstruction of the laundry, with installation of a lot of new machinery, electric wiring of the buildings and the installation of several dynamos, which will make it possible to light the entire hospital with electricity by June 1. The establishment of new quarters for the orthopedic department, including a gymnasium, examining rooms, plaster rooms, operating and dressing rooms, the opening of a new private ward and the building of a stable. During the year ended January 31, 4,531 patients were treated, 2,296 males and 2,235 females, of whom 3,482 were white and 1,049 colored. Of these 3,327 were discharged as well or improved and 280 died, the percentage of mortality being 6.18. In the dispensary about 61,000 visits were made by patients. Dr. G. R. Holden was appointed resident gynecologist to succeed Dr. F. C. Burnam, resigned, and Dr. Stephen Rushmore was appointed assistant. Miss E. Blanche Sterling was appointed assistant medical gymnast in the orthopedic dispensary. Mrs. William Osler presented to the hospital a bronze profile of her husband.

MASSACHUSETTS.

Beginning of Brigham Hospital.—The Peter Bent Brigham Corporation has begun to acquire property on Bowdoin Street, near Cambridge Street, in the West End, Boston.

Cremation in Favor.—Cremation is gaining in favor with people of Boston and vicinity, as shown by the increased number of cremations at Mount Auburn cemetery. In 1904 there were 180, as against 153 in 1903.

Dipsomaniacs Cured.—At a legislative hearing relative to the abolition of the Massachusetts Hospital for Dipsomaniacs and Inebriates at Foxboro, the trustees testified that during the past five years 21 per cent. of those admitted had been discharged cured.

Waltham Medical Examiner.—A strong petition has been filed with Gov. Douglass against the re-appointment of Dr. Julian A. Mead of Watertown as medical examiner. Objection is based chiefly on Dr. Mead's testimony in a recent murder trial. Petitions favoring three Waltham practitioners are being circulated.

Examination for Bacteriologists.—The position of bacteriologist to the Cambridge Board of Health will be filled by a competitive examination to be conducted by Drs. Harold Ernst and Hibbert Hills. Dr. John R. Sennot, who at present holds the position, was appointed two years ago, and was not reappointed when his term expired February 1.

Street Car Air.—In a hearing before the legislative committee on street railways on a petition asking for laws for improved ventilation, John P. Fox maintained that he had experimentally tested the air in the street cars of Boston on bad days and had found that it contained only 9 parts of carbon dioxid to 10,000, which he considered not at all injurious.

Personal.—Dr. W. R. Brinkerhoff, who was Dr. Tizzer's associate at Manila, has arrived at Alexandria, Egypt, en route to join the Carnegie Archeologic Expedition to the Trans-Caucasus, of which he is physician.——Dr. Albert L. Norris, Cambridge, is seriously ill at the Corey Hill Surgical Hospital, Brookline.——Dr. and Mrs. William N. Swift, New Bedford, celebrated their silver wedding February 15.

Municipality Wins.—The Board of Health of Everett has won in a suit brought against it by a Mrs. Salinger, in whose house a case of smallpox occurred in 1901. The house was at once taken for a pest-house, being rented at the full regular rates. She brought suit to recover $3,000 more than the rent because of "wear and tear and fumigation and the evil reputation of a pest-house," which she alleged had lessened the value of the property.

Board of Health Changes.—Cambridge has a recurrence of its board of health troubles. Dr. Felix McGirr, who has been in charge of the contagious hospital the past year, was refused a re-election, and Dr. David C. Dow, who preceded him, was again elected. Dr. Edwin Farnham was re-elected medical inspector and physician of the board of health, and Dr. C. P. Feeley was elected school inspector in place of Dr. John P. Nelligan. Dr. Charles G. Weeks was re-elected chairman of the board.

Tufts Medical Announcements.—President Capin of Tufts College reports that there are this year in the medical school 409 students and 107 instructors. The following new appointments have been made: Dr. Henry B. Chandler, professor of ophthalmology; Dr. Walter Elmore Fernald, clinical lecturer in mental diseases; Dr. Charles Melville Whitney, instructor in genito-urinary diseases, and Dr. Ralph Clinton Larrabee, instructor in clinical medicine and hematology.

Hospital Concerts.—Six hospital concerts will be given during March, under the personal supervision of Dr. John Dixwell, by trained professionals, under the auspices of the Hospital Music Fund: March 1, at the Church Home for Orphan and Destitute Children; March 5, at the Children's Hospital; March 10, at the Mt. Hope Home for Children; March 12, at the Brookline Free Hospital for Women; March 19, at the Woman's Charity Club Hospital, and the Cushing Hospital, and March 26, at the New England Baptist Hospital.

Newton Hospital Report.—During 1904, 927 patients were cared for in the Newton Hospital, an increase of 13 per cent. over 1903. The cost per patient in the general wards was $13.51 per week, and in the contagious wards $16. The endowment fund has been increased by $7,000 during the year, and $10,109 was contributed by the churches on Hospital Sunday. The hospital itself has earned during the year $32,210 out of the total receipts of $56,871, a balance over expenses of $2,895. The total assets as reported by the treasurer are $231,681.

State Registration of Nurses.—Energetic efforts are being made by the Massachusetts State Nurses' Association and its friends to secure the passage of a bill for the registration of nurses. Their measure is strongly supported by nurses and physicians, but opposed by others who find fault with the requirements of the bill, which would exclude nurses who are graduates of many of the smaller hospitals and also object to the stipulation that the board of registration shall be appointed by the governor from a list to be submitted to him by the association.

Dealers in Pure Food Crusade.—The activity of the State Board of Health in prosecutions for sale of impure food has induced the dealers in the Faneuil Hall Market, Boston, to adopt the following resolution: "We will not knowingly sell or have in our possession with intent to sell any article of food that contains any preservative or foreign substance intended to improve the condition or appearance of the same, and we will notify all manufacturers from whom we are purchasing our supplies, that we will not receive or handle goods so prepared."

Children's Hospital Report.—During the last year there were treated at the Boston Children's Hospital 1,505 cases in the hospital proper, and 28,008 in the out-patient department, of which 6,341 were new cases. The great increase since 1890, when there were 442 house patients and 1,712 new out-patients, emphasizes the fact that the work of the hospital has outgrown its accommodations. There is an annual deficit of $13,000. Plans for a new hospital to be located near the new Harvard Medical School are near completion. The Convalescent Home in Wellesley is now nearly finished.

Technology Students Healthy.—Dr. Franklin White, medical adviser to the Massachusetts Institute of Technology, reports hat during the last year only 185 out of the 1,600 students onsulted him. Two left their work because of pulmonary tuberculosis and two because of heart disease. A few were sent to the Massachusetts General Hospital, where the institute has free beds. His investigations of the general health of the students shows that two-thirds of the members of the junior and senior classes are never absent a day because of illness, that only about 10 per cent. had any important illness during their four years' course, and that nearly all finished in good general health. Lack of physical exercise and inefficient sleep are the common causes of illness among the students.

MICHIGAN.

State Board Appointments.—Dr. Angus McLean, Detroit, has been appointed a member of the State Board of Health, vice Dr. Daniel A. MacLachlan, term expired. Dr. Malcolm Sinclair, Grand Rapids, succeeds Dr. Collins H. Johnston as a member of the board.

Comparative Disease Prevalence.—For January, compared with the average for January in the ten years, 1895-1904, smallpox, measles and cholera morbus were more than usually prevalent; scarlet fever, pneumonia, intermittent fever, erysipelas, diphtheria. whooping cough, puerperal fever, remittent fever and dysentery were less than usually prevalent.

The Most Dangerous Communicable Diseases.—Whooping cough was reported in Michigan during January at 10 places; meningitis at 15 places; measles at 63 places; diphtheria at 83 places; scarlet fever at 109 places; pneumonia at 101 places; smallpox at 104 places; typhoid fever at 108 places; and consumption at 267 places. Whooping cough was reported present at 9 places less; meningitis at 10 places more; measles at 12 places more; diphtheria at 8 places less; scarlet fever at 17 places less; pneumonia at 19 places more; smallpox at 3 places more; typhoid fever at 3 places more, and consumption at 26 places more in January than in the preceding month.

Mortality of Michigan During January.—The total number of deaths for January was 3,084, corresponding to an annual death rate of 14.2 per 1,000. This rate is higher than that for the preceding month, which was 13.0 per 1,000, but lower than that for January, 1904, which was 14.7 per 1,000. Important causes of deaths were as follows: Tuberculosis, 222; typhoid fever, 37; diphtheria, 56; scarlet fever, 16; measles, 14; whooping cough, 3; pneumonia, 352; diarrheal diseases of infants under 2 years of age, 54; meningitis, 38; influenza, 120; cancer, 142, and accidents and violence, 139. There was an unusually large number of deaths from smallpox during the month, distributed as follows: 1 in Battle Creek City, Calhoun County; 2 in Hillsdale City, Hillsdale County, 5 in Jackson City, and 2 in Columbia township, Jackson County.

NEW JERSEY.

Montclair Hospital Opens.—Mountainside Hospital, Montclair, opened its new building, February 7. By the completion of the new building, which cost $30,000, the hospital has now separate buildings for medical and surgical cases.

Medical Examiners Reappointed.—The senate confirmed the nomination of Drs. Davis P. Borden, Paterson, Charles A. Groves, Orange, and E. L. B. Godfrey, Camden, for reappointment as members of the State Board of Medical Examiners.

Camden's Health.—The report of contagious diseases for the month ended February 15, is as follows: Scarlet fever, 7; diphtheria, 19; tuberculosis, 7, making a total of 33. Last month cases of a contagious disease reported aggregated 64, making a decrease of 31. Tuberculosis is now classed among contagious diseases.

Bequests.—By the will of the late Dr. James D. Tantum, Trenton, $20,000 was devised to Mercer Hospital; $10,000 to St. Francis' Hospital, Trenton; $5,000 to McKinley Hospital, and $5,000 to the German Hospital, Philadelphia, all for the endowment of free beds.——Mrs. Mary E. Ryle, Paterson, left $20,000 to the Paterson General Hospital.

Physician vs. Medical Society.—Dr. Wilson G. Bailey, who was charged with violating the Principles of Ethics, and who was to have been tried before the board of censors of the Camden County Medical Society, has tendered his resignation as a member thereof. Dr. Bailey was charged with testifying in court against a fellow practitioner in violation of the Principles of Ethics.

Personal.—Dr. Onan B. Gross, Camden, and family, have gone to California for the winter.——Drs. Herman C. H. Herold and L. Eugene Hollister have been confirmed as members of the Newark Board of Health.——The staff of the Elizabeth General Hospital and Dispensary gave a banquet at the Astor House, New York City, January 19, in honor of Dr. Alonzo Pettit, president of the staff, who retired after a service of 27 years, at which he was presented with a silver loving cup.——Dr. W. Blair Stewart has been elected president of the medical staff of the Atlantic City Hospital, vice Dr. Byron C. Pennington, deceased; Dr. Elisha C. Chew, vice-president, and Dr. William Edgar Darnall, secretary.——Dr. William C. Sandy, Newark, has been appointed fourth assistant physician of the State Hospital for the Insane.

NEW YORK.

Typhoid in Poughkeepsie.—There are at present 26 cases of typhoid fever in Vassar Hospital. The cases are of a much more severe type than those of last year.

Scarlet Fever Epidemic.—There are 69 cases of scarlet fever in Mount Vernon, and new cases are being reported at the rate of six to seven daily. New Rochelle and White Plains are also suffering from an epidemic of the same disease. The Board of Health of Mount Vernon has passed a resolution compelling all milk companies to sterilize and disinfect bottles before refilling them; failure to comply is punishable by a fine of $50.

News from the Legislature.—The following resolution aims at an investigation of the present situation with reference to the adulteration of foods and medicines: "Resolved, That the commissioner of health be and hereby is requested to furnish to this house a statement of what effort has been made on the part of the Department of Health for the enforcement of said statute, and whether, in his opinion, other or increased facilities or enactments are essential for the proper enforcement of the pure food law within the state."——A measure has been introduced which provides drastic regulations for the employes of milk stations where, it is alleged, most of the adulteration is done. The bill provides that every person employed at a milk station shall take out a license from the state commissioner of agriculture. He must pledge himself under oath not to adulterate nor to permit the adulteration of milk. Violation carries with it disqualification for work in a milk station, in addition to the other penalties now provided.——The annual report of the state fiscal supervisor recommends appropriations for new buildings, improvements, etc., for the state charitable institutions that will aggregate $517,075, and the total appropriations for maintenance, etc., will aggregate over $2,000,000.——In the absence of Senator Elsberg, another coroner's bill has been originated and advanced to the third reading by unanimous consent. This measure reduces the number of coroners in Manhattan from four to two, in Queens and in the Bronx from two to one, and leaves the number unchanged in Kings and Richmond. It fixes the salaries at an increased figure.

Buffalo.

Found Guilty.—Isaac A. Finch was found guilty in the County Court of practicing medicine without a license. He treated Otilia Hoffman before her death for cancer and then sent in a bill to the surrogate against the estate. The bill was disallowed on the discovery that Finch was not a physician.

Personal.—Dr. Roswell Park gave an informal party in honor of Hon. Charles Jerome Bonaparte of Baltimore.——Dr. DeVillo

W. Harrington, who has been ill, is in Washington, D. C., convalescing.——Dr. Julius Ullman was host of the evening at the regular monthly meeting of the Æsculapian Club. A paper on "Nephrolithiasis" was read by Dr. Charles Hoffman.

Central Union Library Wanted.—There is considerable agitation for a club home of the various clubs and societies of Buffalo where also the large medical library now distributed in the University of Buffalo library and the Grosvenor library could be amalgamated into one large and useful library and where lecture-rooms and club rooms could be at the disposal of physicians and medical clubs. Liberal offers of cash donations have already been made by a few physicians, and the subscriptions, in addition to the reserve fund of the Buffalo Academy of Medicine, amounting to $2,000 or $3,000, would be a nucleus for the acquisition of property.

New York City.

Maternity Opened.—The Manhattan Maternity and Dispensary at 327 East Sixtieth Street was formally opened February 15.

Death from Yellow Fever.—A sailor on the steamer *Orizaba*, from Colon, on February 10, developed yellow fever and died at the Swinburne Island Hospital.

More Spitters Caught.—Again the police squad attached to the Health Department have been on a hunt for these offenders. Thirty arrests were made in one evening in the theater district.

German Hospital Dispensary to Build.—The German Hospital has sold its dispensary at One Hundred and Thirty-seventh Street and Second Avenue, and will build a new one near the site of the hospital building at Park Avenue and Seventy-sixth Street.

Personal.—Dr. Emil Mayer has been appointed chief of clinic to the ear, nose and throat department of the Mount Sinai Hospital Dispensary.——Dr. James J. Walsh, who was in the wreck on the New York Central at Whitesboro, February 4, received a severe scalp wound requiring four stitches.

A Hospital for Insanity.—At a meeting in the interests of the American Institute for Scientific Research it was announced that the society had received a gift of $5,000, on condition that it raised $20.000, no limit being set as to the time required to secure this sum. As soon as the amount in the treasury warrants, it is planned to open a hospital where insanity may be treated as in hospitals on the continent.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended February 11, 368 cases of tuberculosis, with 181 deaths; 275 cases of diphtheria, with 42 deaths; 246 cases of scarlet fever, with 14 deaths; 201 cases of measles, with 3 deaths; 28 cases of typhoid fever, with 4 deaths; 3 cases of smallpox, with 1 death; 101 cases of chickenpox, and 29 deaths from cerebrospinal meningitis.

First Aid.—The annual report of the Society for Instruction in First Aid to the Injured showed that 1,979 persons had received instruction from the society's agents. The total number instructed since organization is 19,435, of which 14,231 have passed examinations and received diplomas. At present the society is conducting 21 classes, 11 of which are in the public schools.

Cerebrospinal Meningitis.—The health commissioner states that while there are more deaths from this disease than there should be, they are probably due to the carrying over of cases from last year into this. During an epidemic thirty years ago the cases carried over from the year of the epidemic into the following year. A series of experiments with a proposed new cure for cerebrospinal meningitis are being carried on at Gouverneur Hospital, the report of which will be presented to the county medical society in due time.

Leprosy in New York.—Dr. Charles F. Roberts, the leprosy expert of the Health Department, denies the allegation of Dr. Dyer, consulting expert of the Louisiana leprosy camp, that there are two hundred lepers walking about the city. Dr. Roberts says that there are only three cases known to the health officials, and that these are public charges on Blackwell's Island. All the cases came here from other places. Dr. Roberts has never seen a case contracted in this country, and says that there is no reason for alarm.

The Subway Dust.—Among the arguments made for and against the continuance of a temporary injunction restraining city officials from removing the signs, slot machines and newspaper stands from the subway, George A. Soper, sanitary engineer, claimed that the subway is a dust pocket and its stations traps for the retention of microbes and bacteria. The diseases that are to be apprehended from this dust are pneumonia, bronchitis, whooping cough, diphtheria, influenza and tonsillitis. On the other side it was claimed that the metal frames used on the signs, instead of harboring bacteria, actually destroyed them.

PENNSYLVANIA.

Personal.—Dr. Addison M. Rothrock has resigned as anesthetist of the Chester County Hospital.——Dr. H. Melvin Allen, Reading, has been elected captain of Company A, Fourth Infantry, N. G. Pa.

Convicted of Illegal Practice.—Joseph C. Densten, Scranton, who claimed to have graduated from Jefferson Medical College in 1869, was found guilty, February 8, of practicing medicine without a license.

Sentenced for Malpractice.—Dr. Nathan Penrose, Allegheny, who was found guilty of criminal malpractice whereby the death of a young woman resulted in 1903, was sentenced February 3 to imprisonment for three years in the Western Penitentiary.

State Sanitarians Favor Free Antitoxin.—The free distribution of antitoxin by the state for the treatment of diphtheria was discussed at the closing session of the Associated Health Authorities and Sanitarians at its annual meeting in Harrisburg, February 15. It was advised that the committee on legislation should draft a bill for the attainment of this object and present it to the present session of the legislature if possible. The following officers were elected: President ex-officio, Governor Samuel Pennypacker; vice-presidents, Drs. Thomas N. McKee, Kittanning, Robert S. Maison, Chester, and H. E. Heiler, Hilltown; treasurer, Dr. Jesse Green, West Chester, and secretary, Dr. W. R. Batt, Philadelphia.

Philadelphia.

Bequests.—By the will of Isaac Rosskam the Jewish Hospital Association receives $2,500; the Jewish Foster Home and Orphan Asylum, $2,000; National Jewish Home for Consumptives, Denver, Colo., $2,000, and Free Hospital for Consumptives, White Haven, $1,000.

Municipal Hospital Report.—During January 146 patients were received at the hospital, 104 were discharged, and 24 died. The total number in the institution, January 31, was 188. The deaths for the month were as follows: Diphtheria 18, scarlet fever 5, other disease (not specified) 1. There is no smallpox in the institution at this time.

Health Report.—The total number of deaths reported for the week was 599. This is a decrease of 13 from last week, and a decrease of 4 from the corresponding period of last year. Of the 599 deaths reported, 122 were caused by pneumonia, 14 by influenza, 63 by pulmonary tuberculosis, 20 by bronchitis, and 3 by pleurisy, making a total of 222 deaths due to disease of the respiratory tract. The principal causes of death were typhoid fever 13, diphtheria 2, cancer 23, paralysis 29, heart disease 59, enteritis 16, and Bright's disease 51. The contagious disease cases reported numbered 224, with 30 deaths, as compared with 199 cases and 23 deaths for the preceding week.

Work of Health Bureau for January.—In the division of medical inspection the number of inspections made, excluding schools, aggregated 2,932. The total number of visits to schools was 5,154; 1,111 children were excluded from school; 1,551 persons were vaccinated; 123 injections of antitoxin were administered; 768 cultures were taken; 536 fumigations were ordered; and 97 cases were examined for special diagnosis. The report from the bacteriologic laboratory shows that 2,295 cultures were examined for diphtheria, 346 specimens of blood for Widal's reaction, 240 specimens of milk, 112 specimens of sputum, 1,676 bottles of antitoxin were supplied, and in the chemical laboratory 184 analyses were made. The division of vital statistics reports 1,996 deaths and 2,774 births.

New Hospital Opened.—The Union Mission Hospital at Fourth Street and Columbia Avenue was opened with formal ceremonies, February 22. This hospital has been established largely through the munificence and efforts of Mr. John B. Stetson. It is a three-story brick building, with a roof garden, especially arranged for the treatment of heat cases during the summer months, tents and tubs being erected for the special care of such conditions. The hospital will accommodate about 50 ward patients, and has 11 private rooms. An electrical department has been instituted in the building, with an *x*-ray and Finsen light plant. The following gentlemen compose the major staff of the institution: Medicine, Dr. John H. Dripps;

bution of phthisis in Egypt do not differ from those of European countries.

Visit of British Physicians and Surgeons to Paris.

Arrangements are being made for a party of British physicians to visit Paris to inspect the laboratories, hospitals, and teaching institutions. The French physicians, who recently visited London, at that time expressed the hope of receiving a return visit in the near future. For this purpose, a committee was formed in Paris, with Professor Bouchard as president, and M. Lucas-Championnière as vice-president, and in December Sir William Broadbent, president of the London executive committee, received a formal invitation. May 11-13 has been decided on as the most suitable time for the visit.

Conference on School Hygiene.

A conference on school hygiene was held in London, February 7-10, under the auspices of the Royal Sanitary Institute. This conference is intended to prepare for the International Congress on School Hygiene. which is to be held in London in 1907. The president's address was entitled "The Co-ordination of the Teaching of Hygiene." Other subjects considered were the physical and mental development of scholars, buildings, equipment and sanitary inspection of schools, and training of teachers and scholars in hygiene.

The Prevalence of Syphilis.

The inter-departmental committee on physical deterioration has taken a considerable amount of evidence on the prevalence of syphilis. Most of the witnesses, including Sir Alfred Cooper and Surgeon-General Taylor, agreed that it showed some decrease. Sir Victor Horsley, while stating that there are no available data to decide whether the prevalence of syphilis is greater or less than it was twenty years ago, was positive in stating that its virulence has diminished. He thought that, in order to prevent the spread of syphilis, the medical officers of infirmaries and hospitals should be given statutory powers to detain patients who entered suffering from this disease. Following the resolution adopted at the International Congress held at Brussels, the committee expressed the opinion that "the moment is ripe for a searching and exhaustive investigation into the extent of the malady and for a definite pronouncement on the steps which should be taken to arrest its progress and to trace and counteract its effects."

Cremation in Great Britain.

Though cremation is far from popular in Great Britain, it has made steady progress since the first crematorium was opened in Woking (near London) in 1885. In succession crematoriums have been opened in the following cities: Manchester, in 1892; Glasgow, in 1895; Liverpool. in 1896; Hull, in 1896, the first municipal crematorium; Darlington, in 1901; Leicester, municipal; Golder's Green (near London), Hampstead Heath, near London, in 1902; Birmingham, 1903; Leeds, 1904. In the present year two more will be opened, one by the City of London at Ilford, and the other at Bradford. The number of cremations performed in Great Britain since the establishment of the practice amounts to 4,407. The numbers for 1903 and 1904 were respectively 475 and 566. The success of the movement was largely due to the able and untiring advocacy of the late Sir Henry Thompson. The fact that it has made so little progress is due to theological objections and to the natural conservatism of the English people.

Correspondence.

The Red-Light Treatment of Smallpox.

New York City, Feb. 15, 1905.

To the Editor:—Your editorial comment (February 11, page 477) on the so-called red-light treatment of smallpox is eminently sound and just. In Dr. Schamberg's original article he stated that he used "ruby-colored" glass, but failed to state that he had tested the same for actinism either spectroscopically or photographically. The old style of genuine pot-metal ruby is, I believe, no longer to be found in trade—at least I have not succeeded in getting any, even from sources that supplied me some years ago. All of the so-called ruby glass that I have examined admits an abundance of actinic light, running up even to the blue of the spectrum. The negative experiences of Dr. Schamberg, therefore, have no weight with me and I much prefer to rely on the positive evidence afforded by Finsen and others. The idea, however, of excluding light in the treatment of smallpox is by no means new, as when I had charge of the smallpox hospital in Blackwell's Island in 1864 it was the custom to cover the lesions thickly with mercurial ointment with the express purpose of excluding the light.

H. G. Piffard.

Indoor Humidity.

Brooklyn, Feb. 14, 1905.

To the Editor:—Since the publication of my paper on "Indoor Humidity," which you were good enough to review in the columns of The Journal, a firm engaged in the manufacture of a well-known and widely advertised disinfectant, namely, "Platt's Chlorides," has, without my permission, and much to my annoyance, used my name and extracts from my paper in its advertisements. The omission of quotation marks and the clever wording make me appear responsible for recommending that preparation in connection with humidification. I wish to disclaim all responsibility for the use this firm has seen fit to make of the material contained in my paper. I have requested them to discontinue all such references.

Henry Mitchell Smith.

Queries and Minor Notes.

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

FIGHTING MEDICAL FRAUDS.

Mona, W. Va., Feb. 14, 1905.

To the Editor:—1. In your editorial on "Fighting Medical Frauds" mention is made of the press committees of the Germans, and that it would be commendable for our county societies to follow in their path. I have felt for some time that much should be done for the education of the public in medical matters. I would be under obligations if you would indicate to me where I could secure an outline of the work of such above committee. 2. Has a county society the right to establish a minimum or average fee-bill for its use, at least as a standard for minimum charges? 3. Would our society be within its rights and privileges in preparing a list of those who can pay and will not? I see in some of my journals that some such action has been taken by some county societies.

F. T. H.

Answer.—1. You will find a long account of the German method of fighting medical frauds in The Journal, May 28, 1904, p. 1435, and Feb. 4, 1905, p. 403. 2. Yes. While Section 3, of Chapter II, of the Standard Constitution and By-Laws for County Societies says: "Agreements and schedules of fees shall not be made by this society," it must be understood that this and several other provisions are suggestive and not fundamental. Many excellent societies have adopted schedules of fees and we see no objection to it. 3. Yes, if it is managed with care so as to avoid doing injustice to the worthy poor or to public health, and if the principle is not carried to extremes. It must be recognized that there are those in some communities who can pay but who will not pay either their physician or others. The butcher and the baker demand pay in advance from these and get it. The medical man can not do this always, and yet nothing is more aggravating to a physician than to give his time and his knowledge, often at great personal sacrifice, knowing that he will get nothing for it, simply because the individual he is aiding is too unprincipled or too dishonest to pay. There certainly is an excuse to make provisions that will bring such persons to time. Hence a blacklist, while contrary to the high ideals of physicians, is sometimes almost a necessity. It is a provision, however, that can work a reflection on the profession, and one which can be abused. Under no circumstances should one be placed on the list who would pay if he could; only the real deadbeats should be found there, and there are usually few of these in a community.

LIQUOR STIBII COMPOSITUS.

Sheboygan, Wis., Feb 14, 1905.

To the Editor:—Please let me know the composition and strength of the German liquor stibii comp. This is referred to in Hyde's "Diseases of the Skin." The solution is employed by Unna in the thorn treatment of lupus nodules.

A. G.

Answer.—Dr. Hyde informs us that the formula for the liquor stibii comp. is published in Dieterich's Manual (eighth edition) under the name of liquor stibii chlorati. It is prepared as follows: Antimony sulphid (pure black antimony) is digested with five times its weight of HCl in a flask until reaction ceases. The solution is filtered through glass wool and placed in a glass retort on a sand bath, from which about one-half is distilled off and rejected. The residue is then distilled into a receiver containing an equal weight of distilled water so long as the distillate produces turbidity. This distillate is set aside for several days and the supernatant liquid decanted and mixed with sufficient dilute HCl to give the liquor a sp. gr. of from 1.345 to 1.360. The solution appears to be similar to the solution of chlorid of antimony, known in this country under the commercial name of butter of antimony.

ANTISEPTIC MOUTH WASHES.

Albuquerque, N. M., Feb. 17, 1905.

To the Editor:—Can you suggest a good, reliable aseptic mouth wash that is not a patent medicine and which can be prepared in quantity at a minimum expense? W. H. Burr

Answer.—The following may be used:

Quillaja, in coarse powder	ʒxi	35
Cochineal, in powder	gr. xv	1
Glycerin	fl. ℥iii	90
Oil of gaultheria	gtt. xxv	1
Alcohol	fl. ℥x	300
Peppermint water q. s. to make	fl. ℥xxxii	960

Macerate the quillaja with the alcohol and 12 fluid ounces (360) of peppermint water for several days; add the cochineal, glycerin and oil of gaultheria, let stand for one more day, shaking occasionally, then filter, adding the remainder of the peppermint water, through the filter to make 32 fluid ounces (960 c.c.).

Another formula is a eucalyptus mouth wash:

Eucalyptol	fl. ʒv	20
Menthol	ʒv	20
Oil of cloves	m. lxxx	5
Oil of gaultheria	m. xvi	1
Heliotropin	gr. iss	1
Acetic ether	fl. ʒiii	10
Alcohol	fl. ℥xxx	900
Water q. s. to make	fl. ℥xxxiv	1000

Castile soap may be used instead of quillaja in the first formula given.

Marriages.

Otto C. Gaub, M.D., to Miss Claudia Hax, both of Pittsburg, Pa., February 23.

John E. Hampton, M.D., to Miss Emma Cogdill, both of Asheville, N. C., February 7.

William H. Davis, M.D., to Miss Flora C. Fuhs, both of Brooklyn, N. Y., February 1.

Charles A. O'Reilly, M.D., Philadelphia, to Miss Kate Sproull of Rome, Ga., February 11.

Cyrus M. Harris, M.D., Bourbon, Ind., to Miss Mary Remola Yanaway of Casey, Ill., February 7.

Robert Milton Taliaferro, M.D., to Miss Rebecca Morton, both of Lynchburg, Va., February 15.

Joseph Collins, M.D., New York City, to Miss Edith Davies of Gordon Square, London, February 7.

Francis Murray Phillips, M.D., to Miss Harriet Twyford Bagwell, both of Baltimore, February 15.

Edward Jennings Clark, M.D., to Miss Grace Edith Tunstead, both of Minneapolis, Minn., February 22.

Thomas Williams Nave, M.D., to Miss Clemence Marie Tacquard, both of Galveston, Texas, February 15.

Arthur Lawrence Holland, M.D., New York City, to Mrs. Ethel DeMitkiewitz of Cambridge, Md., February 15.

Harry W. Howland, M.D., Keeneyville, Pa., to Miss Helen P. Gaddis of Baltimore, at Wilmington, Del., June 30, 1903.

Deaths.

William Nichols Platt, M.D. University of Vermont Medical Department, Burlington, 1870, prominent as a practitioner in Addison County, Vt.; senator from that district in 1894; representative in the legislature from Shoreham in 1892; for a long time trustee of the Vermont State Hospital for the Insane; a member of the American Medical Association, Vermont State Medical Society and Addison County Medical Society, died at his home in Shoreham, Vt., Nov. 14, 1904, from cerebral hemorrhage, after an illness of a year and a half, aged 55.

Samuel J. S. Rogers, M.D. Berkshire Medical College, Pittsfield, Mass., 1847, for nearly 55 years a practitioner of California; county physician of Yuba County for two years; city councilman of Marysville for two terms; a member of the American Medical Association, Medical Society of the State of California, California Northern District Medical Society and the Medical Society of Yuba and Sutter counties, died at his home in North Bloomfield, Cal., Nov. 7, 1904, from senile debility, aged 80.

Alexander Ramsay, M.D. Medico-Chirurgical College of Philadelphia, 1892, a member of the American Medical Association; formerly a policeman assigned to duty at Philadelphia Hospital; then a medical student, and later superintendent of the Medico-Chirurgical Hospital; one of the most successful practitioners of Kensington, Philadelphia, died at his home in that city, February 11, from pneumonia, aged 54.

Thomas H. Sherwood, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858; assistant surgeon of the Third and Twenty-seventh Pennsylvania Volunteer Cavalry in the Civil War; for many years a medical referee in the U. S. Pension Office, Washington, died at his home in that city, February 9, from heart disease, aged 71.

Albert A. Johnston, M.D. University of Louisville Medical Department, 1856; surgeon in the Confederate service during the Civil War; for several years president of the Dallas County Medical Society, and a member of the State Medical Association of Texas, died at his home in Dallas, February 10, after an illness of two days, aged 70.

William E. Bessey, M.D. McGill University Medical Department, Montreal, 1863, a member of the American Medical Association and of the British Medical Association; one of the oldest practitioners of Grand Rapids, Mich., died at St. Mary's Hospital in that city, February 15, after an illness of several weeks, from a carbuncle, aged 87.

William H. Heath, M.D. Starling Medical College, Columbus, Ohio, 1852, of Scranton, Pa., a veteran of the Mexican War, died at Lackawanna Hospital, Scranton, February 8, two weeks after an accidental fall on the ice by which he suffered a fracture of the skull, aged more than 80.

Frank Cowan, M.D. University of Georgetown Medical Department, Washington, D. C., 1869, physician, lawyer, journalist, traveler, lecturer, poet and author, died at his home in Greensburg, Pa., February 12, after an illness of several months, aged 60.

Frank Raymond Young, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1899, of Smethport, Pa., a member of the American Medical Association, McKean County Medical Society, and Smethport Board of Health, died May 23, 1904.

John A. Hall, M.D. Jefferson Medical College, Philadelphia, 1859, formerly of Knobnoster and Nevada, Mo., died at the home of his daughter in Lamonte, Mo., February 6, from cerebral hemorrhage, after an invalidism of several years, aged 73.

Timothy Melville Lippitt, M.D. Starling Medical College, Columbus, Ohio, 1897, died at his home in Columbus, February 10, from long-standing disease of the throat, for which recent operation had given only temporary relief, aged 32.

John A. Henry, M.D. New York University, New York City, 1890, formerly assistant health commissioner of Denver, died at St. Joseph's Hospital, Denver, January 23, from tuberculosis, after an illness of several years, aged 40.

John D. Butler, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1841, formerly a member of the legislature, died at his home near Sparta, Va., February 9, after an illness of several weeks, aged 86.

Joseph Haas, M.D. Jefferson Medical College, Philadelphia, 1850, of Mahanoy, Pa., for 55 years a practitioner of the Mahanoy Valley, died suddenly in his sleigh while making a professional call, January 27, aged 75.

John Beale Howard Gittings, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1863, died at his home in Philadelphia from lobar pneumonia, February 9, after an illness of five days, aged 67.

John W. Goodwin, M.D., formerly of Greenup, Ill., treasurer of Cumberland County, Ill., [illegible] Pomona, Ca[illegible] [illegible]l. January 27, [illegible] e in Los Ar[illegible] [illegible]l., after a[illegible] of three mo[illegible] heart disea[illegible]

Harry Lester Small, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1904, died at his home in Burnham, Maine, Dec. 26, 1904, from typhoid fever, after an illness of twelve days, aged 32.

John Sappington, M.D. Jefferson Medical College, Philadelphia, 1868, senator from Harford County from 1886 to 1888, died at his home in Darlington, Md., February 10, from cerebral hemorrhage, aged 56.

John Rockwell McLelland, M.D. College of Physicians and Surgeons, Baltimore, 1873, representative in the state legislature in 1892 and 1896, died at his home in Mooresville, N. C., January 30, aged 54.

Sydney E. Tiner, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1904, of Kingston, died in the Orthopedic Hospital, New York City, February 14, from spinal meningitis, aged 25.

William P. Chapman, M.D. University of Nashville (Tenn.) Medical Department, 1860, died at his home in Woodville, Texas, February 10, after an illness of several months, aged 68.

H. S. Goodwin, M.D., of Sedalia, Mo., assistant surgeon in the Army in the Philippine Islands for three years, died in the University Hospital, Kansas City, Mo., Nov. 3, 1904, aged 35.

Samuel Jay Mills, M.D., of Toledo, assistant surgeon in the Army during the Civil War, died in the Lucas County Infirmary, Toledo, February 2, after an illness of a week, aged 71.

Joseph T. Sloan, M.D. University of Nashville (Tenn.) Medical Department, 1861, died at his home in Tehuacana, Texas, from influenza, February 9, after a short illness, aged 64.

John A. Vixtrum, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1883, of Princeton, Ill., died from tuberculosis at Colorado Springs, Colo., February 9.

Robert A. Ellis, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1871, died at his home in Hot Springs, Ark., February 11, after a long illness.

Ava M. Carroll, M.D. University of Buffalo (N. Y.) Medical Department, 1888, died at her home in Niobe, near Jamestown, N. Y., February 9, after a long illness, aged 48.

Waitman W. Morgan, M.D. College of Physicians and Surgeons, Baltimore, 1883, died at his home in Mingo Junction, Ohio, February 14, from pneumonia, aged 49.

Charles Walter Wilkerson, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1898, died at his home in Montgomery, Ala., February 9, aged 39.

Francis Anson Evans, M.D. St. Louis, 1877, poet and journalist, died at his home in Tell City, Ind., February 9, after an illness of more than a year, aged 51.

Cuthbert Bullitt, M.D. Kentucky School of Medicine, Louisville, 1859; veteran of the Mexican and Civil wars, died at San Antonio, Texas, February 11, aged 83.

Thomas F. Padula, M.D. Harvard University Medical School, Boston, 1887, died suddenly at his home in Quincy, Mass., February 9, from heart disease, aged 45.

Samuel B. Smith, M.D. University of Nashville (Tenn.) Medical Department, 1882, died suddenly from heart disease at his home in Naples, Texas, February 10.

Peter Roosevelt Johnson, M.D. College of Physicians and Surgeons in the City of New York, died at his home in Sag Harbor, L. I., February 13, aged 76.

William W. Leggett, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1859, of Lamar, Ark., died recently in Danville, Ark.

James R. Bracken, M.D. Cincinnati, 1852, died at his home in Warren, Ohio, February 14, after an illness of five days, from influenza, aged 79.

DeWitt Clinton Senter, M.D. Vanderbilt University Medical Department, Nashville, 1886, died suddenly in Middleboro, Ky., February 15.

Elliott Detchon, M.D. Cleveland Medical College, 1851, died at his home in Crawfordsville, Ind., January 29, after a short illness, aged 76.

Richard Joseph Nagle, M.D. College of Physicians and Surgeons of Chicago, 1895, died at his home in Dixon, Ill., February 12, aged 39.

Thomas Moore, M.D. King's College, London, England, 1845, died at his home in Indianapolis, February 8, from senile debility, aged 83.

Joseph H. Lawrence, M.D. University of Louisville Medical Department, 1894, died suddenly in a bank at Hyden, Ky., February 8.

John H. Gale, M.D., Illinois, 1893, of Chicago, died at the Chicago Union Hospital February 18, from heart disease, aged 68.

J. N. Ridley, M.D. Atlanta (Ga.) Medical College, 1880, died at his home in Warwick, Ga., February 8, after a lingering illness.

H. H. McLendon, M.D. Louisville Medical College, 1886, of Floyd, Texas, died, February 8, at Greenville, Texas, aged 40.

J. C. Crandall, M.D., Minnesota, died suddenly at his home in Witoka, Minn., February 14, from senile debility, aged 81.

Samuel J. Hole, M.D., Examination, 1855, died at his home in Hanoverton, Ohio, February 13, aged 75.

George Keeslar, M.D. County License, 1897, died at his home in Orland, Ind., February 2, aged 75.

William B. Jones, M.D. Kansas City, Mo., died at his home in Galena, Kan., February 3.

Miscellany.

The Oldest Medical Works and Prescriptions.—The oldest medical works in existence are those of the Chinese, and date back to nearly 3,000 years B. C., says the *Practical Druggist.* Then, as now, they divided their subjects under the captions of healing, cooling, refreshing and temperate. They have everything divided into classes, and their prescriptions are classified under seven headings, as follows: (1) The great prescription; (2) the little prescription; (3) the slow prescription; (4) the quick prescription; (5) the odd prescription; (6) the even prescription; (7) the double prescription. These are applied under four special circumstances and conditions, which in turn are classified. Fire is an agent in which they have great faith, as also they have in mineral waters.

How to Succeed in Medicine.—The following has been prescribed to insure success in the practice of medicine, and long years of experience have fully demonstrated that the formula may safely be given the highest degree of confidence, says the *Clinical Review:*

Be enthusiastic about your work.
Be sympathetic with the sick.
Be pleasant and agreeable.
Have confidence in yourself.
Exercise good business tact.
Beware of ruts, and
Remain a life long student.

The editor adds a further injunction which he thinks merits the dignity of being at least second in the list. That is: Be divinely patient at all times.

Evils of Contract Practice.—A good illustration of the evils of the so-called club, or contract practice, according to the *Clinical Review,* was recently mentioned by a physician resident in a neighborhood where such a degrading state of things exists. It appears that in a talk with one of the laity, who clearly had a keen sense of comparison, this physician was told by the layman that his "family could get doctored cheaper than he could get shaved." And in explanation it was brought out that the workman paid a dollar per month to his barber, for which a ticket was given entitling him to three shaves a week and one hair cut a month. On the other hand, he paid 75 cents per month to the contract doctor, and in return received for himself and entire family all needed medical attention and medicine.

Botryomycosis.—The following are, in brief, the conclusions of a paper by V. Ball of Lyons, based on experimental work in regard to this disease of animals which has been recognized also in the human species. His article was published in *Archives Gén. de Méd.* cxciv, No. 31, 1904. Botryomycosis is purely a microbic disorder due to a special staphylococcus. The tumors are *sui generis,* thus suggesting a specific agent in their causation. Botryomycoses appear only tardily in the tumors. The muriform masses in the horse appear to be of cellular structure. The ball-like formations (boules) are the result of botryosic degeneration. The term botryomycosis is incorrect, as the disease is not a mycosis. He agrees with Poncet and Dor that there occurs in man an affection which, from an anatomic and bacteriologic point of view, affords a close analogy with the animal disorder.

Disposal of Dejecta in Small Communities.—Dr. Seneca Egbert, in the *Medico-Chirurgical Journal*, mentions the widespread influence for harm of the domestic privy-vault or cesspool in villages and small communities throughout the country. He condemns the "fatuous blindness" of the home-builder who, for convenience sake, locates both the privy and the well near the dwelling and, therefore, near each other. He states that too often the physician himself fails to note the obvious source of the disease which he is treating. Dr. Egbert says that doing away with the privy will not immediately remove the harmful influence from the water supply, as the soil is saturated, and that a new and unpolluted water supply must be secured before the improvement for sewage and disposal of excrement is begun. He calls attention to the fact that in communities without a good water supply the cost of a single epidemic of typhoid or similar disease often far exceeds the expenditure necessary for the purchase or lease of reservoirs, dams, mains, etc.

How to Make the Society Meeting Valuable.—Not more than one society paper out of ten is suitable for the columns of a live medical journal. The other nine are usually compiled articles rehashed from text-book research, according to the editor of the *Medical Council*. The article which is really worth publishing deals with the author's own experience, either involving points that have not been published before in journals or books, or specially emphasizing some point not well known, or exposing some mistake common in our present practice or literature. If this idea were kept in view in preparing society articles, our medical society meetings would all be worth attending. They generally are any way—on account of the good fellowship promoted, if not on account of the value of papers read. A paper two minutes in length showing some practical point is of more value than the average compiled article of a half-hour to an hour's length. Make a resolution to give your hearers something they can not get in text-books or not to read a paper at all.

Fresh Eggs.—The question of convenient transportation and prompt delivery is not so important in the case of eggs as of milk, but it is nevertheless worth considering. The *Scientific American* describes a tray-like metal holder in which one dozen eggs are retained by projecting spring-like rings. In transportation the eggs are kept from being broken far more successfully than by the old pasteboard method. The eggs placed in the holder by the farmer need not be removed until they reach the consumer; for example, they may be examined by holding the entire dozen in the holder to the light, and the package can be placed in a refrigerator or placed entire in water for cooking. To assure the quality, a strip label may be placed across each row of eggs so that the eggs can not be removed without destroying the label. This label may be dated, instead of the method now sometimes employed of using a rubber dating stamp on each egg. This will aid in providing "morning eggs" for infants and invalids. The method seems to have much to commend it, especially to those who do not relish the common store eggs which "ought only to be scrambled."

Immigration in Canada from the Medical Standpoint.—Dr. J. M. Aumont addressed the last Congress of French-Speaking Physicians on the above subject, declaring that Canada is the dumping-ground of all the immigrants rejected by other countries. The consequences are that the hospitals are filled with imported sick, the country is infested with the contagious diseases of Europe, and the prisons are crowded with the criminals that have escaped their just deserts elsewhere. He urges legislation to insure more careful medical inspection of immigrants, and measures to attract desirable immigrants. The Canadian government spent only $494,842 in 1902 and $642,913 in 1903 for the latter purpose, while the quarantine and public-health service was allowed $144,074 and the veterinary service $106,529. During the year 1903, 128,365 immigrants entered Canada, and of the 31,383 settling in western Canada only 899 were Canadians returning from the United States. He applied recently to the immigration bureau for a housemaid. The first sent to him, just arrived, was consumptive; the second had trachoma. Both were from England. He wrote up the matter in the lay press and the immigration bureau replied, denying the facts, and absolutely refused to send him another maid at his further requests.

A Sign of Death.—In commenting on premature burial the *British Medical Journal* states that the horrors of the accident are probably more imaginary than real. If a person in a state of trance were to be buried while life still persisted in a latent state, it is scarcely conceivable that the victim could awake; the unconsciousness of catalepsy would simply deepen until it became fixed in the dreamless sleep of death. The danger of premature burial is, of course, greatest in time of epidemic, when the disposal of the dead becomes a matter of urgency, and the risk of infection may conceivably cause undue haste in the verification of the fact of death. The test recently published by Icard,[1] and claimed by him to furnish absolute proof of death, is referred to. After the injection of a solution of fluorescin deeply into the cellular tissue, if circulation still goes on, intense jaundice of the skin and mucous membranes follows the absorption of that substance, whilst the eye becomes green "like an emerald set in the orbit," to use the author's phrase. If the circulation has completely stopped nothing of the kind is seen. When, therefore, after some time has elapsed from the time of the injection, none of these phenomena of coloration are seen, it may safely be concluded that death has occurred. A return to life would be manifested by renewal of circulation, and this would automatically be followed by yellow staining of the skin and green coloration of the eye. In time of epidemic Dr. Icard thinks it would be expedient, at least two hours before a body is placed in the coffin, to make a subcutaneous injection of fluorescin. If the person is dead this causes no disfigurement; if he is alive only a transient discoloration is produced.

The Sunflower Vice.—A peculiar indulgence of the Russian peasant, noted by Marcou in *Archives Generales de Médicine*, is the habit of eating sunflower seeds, which is almost universal among the lower classes of that country, and which is credited by him as responsible for the propagation of infections to a very serious extent. The seed, which has an oily kernel of a rather agreeable taste, has a harder envelope, which is split by the teeth and which is expectorated in the streets, public conveyances, places of amusement, etc. Covered with saliva, it carries whatever germs may exist in the mouth and quickly drying puts them in a condition for doing the most harm. He found, by actual examination of samples collected, that most of these ensalivated husks were rich in pathogenic germs. In nearly all staphylococci were found, very frequently streptococci, in twenty cases Koch's bacilli, and in ten the bacillus of diphtheria. The universality of the habit is very noticeable, and he reports that the empress, recognizing this little indulgence, has had sent to the army in Manchuria $150,000 (the article says 800,000 francs) worth of these seeds to encourage the soldiers in their arduous campaign. Sunflower seed seems comparatively innocent. The fact that its usage has become so widespread as this French author reports is significant and suggests that there must be something more than a mere gustatory gratification in the indulgence. When asked why they so indulged, the answer of the users was always the same: It does not especially nourish; it even makes the mouth sore after a time, but it occupies the attention and distracts from other matters. In its way, Marcou says, it is a veritable minor social scourge and one pathologic factor to be added to the numerous others that exist in the Russian empire.

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[1] Ann. d'Hygiene Publique et de Méd. Lég., October, 1904.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Examinations in Hawaii.—The Hawaiian Territorial Board of Medical Examiners has ruled that all examinations for license to practice medicine and surgery in the Territory of Hawaii shall be conducted in the English language; and that examinations shall be held four times a year, in January, April, July and October. These regulations went into effect Jan. 1, 1905.

Indiana January Report.—Dr. W. T. Gott, secretary of the State Board of Medical Registration and Examination reports the written examination held at Indianapolis, Jan. 10-12, 1905. The number of subjects examined in was 18; number of questions asked, 100; percentage reuired to pass, 75. The total number of applicants examined was 61, of whom 50 passed and 11 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Rush Medical College...(1903) 75 1, 87.2;	(1904) 82.6, 83.5,	87.2
American Medical College, Missouri	(1904)	86.2
Eclectic Medical Institute, Cincinnati	(1904)	81.4
Miami Medical College	(1903)	88.5
Barnes Medical College	(1904)	84.8
Howard University	(1904)	75.5
Johns Hopkins Medical School	(1902)	86.7
Jenner Medical College	(1904)	82.1
Cornell Medical College	(1902)	90.6
Trinity University, Toronto	(1904)	80.9
Indiana Medical College	(1904) 75.2, 83.1,	83.3
Woman's Medical College, Pennsylvania	(1904)	82.3
Yale Medical School	(1900)	83.5
University Medical College	(1904)	77.9
Hosp. Coll. of Med., Kentucky	(1904) 75.8,	83.2
Southwestern Homeopathic Medical College	(1904)	85.1
Northwestern University. (1902) 86.8, (1903) 88.4,	(1904)	82.9
University of Michigan.............(1902) 88.9,	(1903)	78.7
Medical College of Ohio	(1902)	88.9
College of P. and S., Chicago, (1902) 75.5, 80.1; (1903) 85.4, (1904) 77.5, 80.1, 80.1, 83.4, 84.8, 80.		
Harvey Medical College	(1901)	78.7
Illinois Medical College	(1904) 79.1, 80, 81.1, 83.3,	84.1
Chicago Homeopathic Med. College...(1903) 78.2	(1904)	84.2
University of Hungary	(1894)	76
Louisville National Medical College	(1903)	75.9
University of Louisville	(1903)	79.6
Kentucky School of Medicine	(1904)	76.5
FAILED.		
Hospital College of Medicine	(1904) 48 5, 58 4, 62.7,	65.5
University of Louisville..........(1891) 48.1,	(1904)	67.5
Kentucky University	(1904)	64.3
Medical College of Indiana	(1904)	65.1
Eclectic Medical Institute, Cincinnati	(1903)	66.7
Kentucky School of Medicine	(1889)	52.5
Illinois Medical College	(1902)	57.8

New Mexico December Report.—Dr. B. D. Black, secretary of the New Mexico Board of Health, reports the oral and written examination held at Santa Fe, Dec. 5, 1904. Two persons were examined. A graduate of Vanderbilt University (1893) passed, and a graduate of the National Medical University, Chicago (1903), failed for the second time. Twenty-three applicants were licensed under the present law by registration of diplomas from schools in good standing.

North Dakota January Report.—Dr. H. M. Wheeler, secretary of the North Dakota State Medical Examining Board, reports the written examination held at Grand Forks, in January. The number of subjects examined in was 13; percentage required to pass, 75. The total number examined was 8, of whom 6 passed and two failed (Chicago Homeo. Med. Coll., 1895, and Hamline University, 1904, percentages not given). The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
	(1903)	80
Hamline University	(1902)	75
Trinity University	(——)	78
University of Minnesota	(1903)	86
Rush Medical College	(1904)	77
Marion Sims-Beaumont Medical College	(1904)	81
Hahnemann Medical College, Chicago		

Rhode Island January Report.—Dr. Gardiner T. Swartz, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, Jan. 5-6, 1905. The number of subjects examined in was .7; total number of questions asked 70, percentage required to pass, 75. The total number examined was 5, all of whom passed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Baltimore University	(1904)	79.1
Tuft's Medical College	(1904)	82.8
Georgetown University	(1903)	80.6
College of P. and S., Boston	(1904)	80.4
College of P. and S., New York	(1899)	86.5

South Dakota January Report.—Dr. H. E. McNutt, secretary of the South Dakota Board of Medical Examiners, reports the written examination held at Aberdeen, Jan. 11 and 12, 1905. At each examination the number of subjects examined in was 12; total number of questions, 99; percentage required to pass, 75. The total number examined was 23, of whom 19 passed and 4 *failed*.

College.	Year Grad	Per Cent.
PASSED.		
Rush Medical College. (1882) 78.56, (1903) 84.33,	(1904)	78.16
College of P. and S., Chicago	(1902)	79.41
University of Iowa	(1897)	80.75
University of Minnesota..........(1902) 84.5,	(1904)	78.08
Hering Medical College, Chicago	(1904)	86.17
Chicago Homeopathic Medical College	(1904)	79
University of Pennsylvania	(1895)	82.08
Detroit College of Medicine	(1904)	76.75
University of Nebraska	(1904)	82.91
Hamline University ....(1896) 75,*	(1903)	84
Keokuk Medical College	(1903)	79.66
American College of Med. and Surg., Chicago	(1904)	83.58
Ohio Medical University	(1902)	82.16
Washington University	(1903)	83.33
University of Bishop's College, Montreal	(1902)	86.08
FAILED.		
Wisconsin College of Medicine	(1896)	35.25
Starling Medical College	(1903)	70.8
New York Medical University	(1890)	70.8*
Washington University	(1904)	71.8

*Second examination.

Association News.

THE PORTLAND SESSION.

Contracts Closed for the Main Auditorium and Rooms for All Sections Arranged Near.

The following announcements are made in the *Medical Sentinel* concerning the Portland session of the American Medical Association:

MEETING PLACES ARRANGED.

Contracts have now been made for a large auditorium and galleries for exhibitors in the Portland Exposition building; the central auditorium for the General Meetings will easily seat 3,000 people and has good acoustic properties. This is situated on three different car lines and has two others within two or three blocks. It is also in the center of the main school and academy district of the city, so that rooms for all the sections have been obtained within a radius of not to exceed six blocks from the central building.

This will provide abundant and comfortable accommodations for both the General Meetings and the different sections during their meetings in Portland. The Exposition building is within five or six minutes' walk of most of the leading hotels and is on a direct line from the center of the city to the Lewis and Clark Fair grounds. The two chief car lines to the fair grounds pass its doors.

ACCOMMODATIONS FOR ALL VISITORS ASSURED.

A large number of requests for accommodations have already been received and promptly responded to, and their wishes fulfilled by the bureau, of which Mr. H. C. Bowers has charge. The committee of arrangements again wish to urge all who are intending to come to the session to send in their requests for accommodations at an early date. A number of new, smaller hotels are going up all over the city; the boarding schools and academies are being converted into summer hotels, and with the Inside Inn and the thousands of private rooms that will be for rent during the fair, there need be no fear of any one failing to secure comfortable quarters at reasonable rates.

The committee on finances is also receiving most encouraging support with its subscription lists, and, taking it altogether, with commodious central places of meeting all secured, a list of 5,000 rooms at the disposal of intending visitors, and a large attendance on the part of the profession of the United

States to make this an opportunity for a gala trip of exploration and sightseeing, the success of the Portland session of the American Medical Association is assured.

Rates to Portland.

We are daily receiving requests for information regarding the rates to Portland for the next session of the American Medical Association. There is nothing further to announce than what has already been announced, namely, that the rates thus far made are $45 for the round trip from Missouri River points, St. Paul, Omaha, St. Joseph and Kansas City. The rate from Chicago is $56.50, this rate being $5 less than the regular one-fare rate now prevailing. While no official action has been taken by many of the passenger associations, undoubtedly one-half rates will prevail from all points east of those mentioned. One will have the option of returning by a different route, no matter by what road one may go. For instance, one may go by any of the extreme southern routes and may return by the Canadian Pacific or by any of the routes between these two extremes. The return route must be designated on ticket, hence it must be decided on before starting. Stop-over privileges will be given at important points, the time limit being 90 days. It is to be understood, however, that a passenger is always sent to his destination by the shortest route. If he wishes to go through a point not on this direct route an extra charge is usually made. For example, if one wishes to return by the Southern Pacific from Portland to St. Louis, one can not expect to be routed through San Francisco and Los Angeles, unless it is so specified, because the railroad can send its passengers by the direct line through Oregon, Idaho, Wyoming and Nebraska. Thus on some lines, one who visits San Francisco or other coast points and starts back from there will probably have to pay something between $7 and $11, no special rate having thus far been made, although an extremely low one may be expected. We speak particularly of this point, so that purchasers of tickets will decide on routes carefully and will secure a full understanding from the ticket agents of whom they purchase. The exact route should be specified on the tickets as stated above. These rates can be obtained by anyone, so that physicians can be accompanied by friends. Further information can be obtained by applying to the agents of the railroads all over the country, although official announcements in regard to many of the points mentioned above have not been issued.

The Yellowstone Park-Portland Special.

As announced in a previous issue, arrangements have been made for running a special train from Chicago by way of Yellowstone Park. This train will run over the Chicago, Burlington and Quincy Railroad to Minneapolis, and thence over the Northern Pacific. As first announced, the number will be limited to 250. It has been decided, however, that this number is too large for one party in the park, consequently the train will be divided into two sections, each limited to 125. The first section will leave Chicago, June 30, arriving at the Yellowstone Park July 2. This train will reach Portland on the morning of July 10. The second section will leave Chicago July 1, reach the park July 3, and Portland on the afternoon of July 10. The extra expense connected with the Yellowstone Park trip will be $49.50. This will include all expenses from the time of leaving Livingston, at which point a branch leaves the main road for the park, until the return to Livingston, including hotel expenses, stage transportation, etc. A dining car will be attached to each of these trains during the entire trip. There will also be an observation car on each of the sections. A much larger number have registered for this special than was expected, and we would suggest that those who are thinking of taking advantage of this occasion to visit the park should send in their names at once. We repeat, the number will be limited absolutely to 250, 125 to leave on the first section and 125 on the second. Those going by this train will have the privilege of returning by another route.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 18, 1905:

Kendall, Wm. P., granted twenty-two days' leave, to take effect Feb. 5, 1905; on expiration to proceed to Manila, P. I.

Torney, Geo. H., deputy surgeon general, left U. S. Army General Hospital, Presidio of San Francisco, on thirty days' leave of absence.

Stephenson, Wm., surgeon, assumed temporary charge of chief surgeon's office, San Francisco.

Owen, Wm. O., surgeon, left Fort Logan, Colo., en route to Washington, D. C., on delay in reporting for treatment at U. S. Army General Hospital, Presidio of San Francisco.

Wells, Geo. M., surgeon, relieved from duty in Philippine Division and ordered to proceed to San Francisco and report for orders.

George, William R. S., contract surgeon, returned February 4 to his proper station, San Juan, P. R., from detached service at Cayey, P. R.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 18, 1905:

Williams, R. B., P. A. surgeon, detached from the Naval Hospital, Norfolk, Va., February 14 and ordered to the *West Virginia*.

Dunn, H. A., asst.-surgeon, detached from the Naval Hospital, New York, February 20, and granted leave for six weeks.

Bagg, C. P., surgeon, detached from the Naval Hospital, Mare Island, Cal., February 21, and ordered to the Naval Station, Guam, L. I., sailing from San Francisco February 25.

Backus, J. W., asst.-surgeon, ordered to the Naval Hospital, Portsmouth, N. H., and to additional duty on the *Southery*.

Bogan, F. M., P. A. surgeon, detached from the *Decatur* and ordered to the Naval Hospital, Yokohama, Japan, for treatment.

Munson, F. M., asst.-surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to the Naval Station, Guam, L. I.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service, for the seven days ending Feb. 15, 1905:

Gassaway, J. M., surgeon, Bureau letter of Feb. 3, 1905, granting leave of absence for ten days from February 9, amended to read ten days from February 14.

Wertenbaker, C. P., surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Havana, Cuba, for duty in the office of the United States Consul General. Granted leave of absence for twenty days from January 22.

Wickes, H. W., P. A. surgeon, leave of absence for one day granted by Bureau telegram of January 28 revoked.

Fricks, L. D., P. A. surgeon, to report to Surgeon G. W. Stoner, Immigration Depot, New York, for duty.

Earle, B. H., asst.-surgeon, granted leave of absence for seven days.

Fowler, J. B., A. A. surgeon, granted leave of absence for thirty days from March 7.

Richardson, S. W., pharmacist, relieved from duty at Boston, and directed to proceed to Wilmington, N. C., and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist Malcolm McKay.

McKay, Malcolm, pharmacist, on being relieved at Wilmington, N. C., by Pharmacist S. W. Richardson, to proceed to Boston, and report to the medical officer in command for duty and assignment to quarters.

BOARD CONVENED.

Board convened to meet at Fortress Monroe, Va., for the purpose of making an investigation as to the cause of the damage to the launch *Spray*. Detail for the board: Surgeon J. B. Stoner, chairman; A. A. Surgeon H. W. Keatley, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Feb. 11 to Feb. 17, 1905:

SMALLPOX—UNITED STATES.

California: San Francisco, Jan. 21-28, 1 case.

Illinois: Feb. 4-11, Chicago, 26 cases, 2 deaths; Galesburg, 1 case.

Kentucky: Louisville, Feb. 2-9, 2 cases.

Louisiana: New Orleans, Feb. 4-11, 8 cases, 4 imported.

Michigan: Detroit, Feb. 4-11, 1 case.

Missouri: St. Louis, Feb. 4 11, 41 cases, 2 deaths.

New York: New York City, Feb. 4-11, 3 cases, 1 death.

Ohio: Dayton, Feb. 4-11, 1 case.

Pennsylvania: Altoona, Feb. 4-11, 1 case imported from Portage; Lancaster, Jan. 28-Feb. 4, 1 case.

Tennessee: Feb. 4-11, Memphis, 3 cases; Nashville, 2 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Aires, Nov. 1-30, 18 deaths.

China: Shanghai, Dec. 24-Jan. 7, 15 cases, 18 foreigners, 130 deaths, natives.

Ecuador: Guayaquil, Jan. 18-25, 1 death.

France: Paris, Jan. 21-28, 17 cases, 4 deaths.

Germany: Bremen, Jan. 14-21, 4 cases.

Great Britain: Jan. 21-28, Hull, 7 cases; South Shields, 2 cases; Leeds, Jan. 28-Feb. 4, 20 cases, 1 death; Newcastle on-Tyne, Jan. 1-28, 7 cases, 1 death.

India: Bombay, Jan. 10-17, 62 deaths; Calcutta, Jan. 7-14, 2 deaths; Karachi, Jan. 8-15, 1 case; Madras, Dec. 31-Jan. 13, 4 deaths.

All the classical symptoms may be absent and no single symptom is invariably found. A valuable sign is the absence of the usual undulatory abdominal movement; the whole abdomen moves at once and even this motion is lost later. Exploratory laparotomy is justifiable when the diagnosis is in doubt; a small incision may be sufficient. If no perforation be found and a culture prove sterile the gut is usually intact.

Dr. C. E. Briggs said it was necessary to distinguish between the signs and symptoms of perforation as the latter are useless in lethargic patients. The altered pulse rate, abdominal rigidity and altered type of respiration are the most important signs. He thinks enterostomy preferable to suture in some cases. It is very simple, relieves flatus, and the septic absorption is less than if the lumen be constricted by an extensive infolding of the edges.

Dr. N. Rosewater thought that ergot with strychnia was useful in some cases. He had seen its good effects in a case which he had recently had. There were symptoms of perforation which cleared up. Twelve days later the patient died, nine perforations being found, two walled off, showing the possibility of recovery in perforation.

Dr. G. W. Crile said there was a marked antithesis between the toxic action of typhoid and pyogenic infections. With a stimulation or an inhibition of the vasomotor center there results a fall or a rise of blood pressure. In typhoid the vasomotor center is depressed, the venous circulation is congested and the blood pressure is low; the skin is of a dusky color. There is a great contrast in pyogenic infections; the vasomotor center is stimulated, the blood pressure is high, the peripheral venous circulation is contracted and there is marked pallor. It is difficult to estimate the changes that perforations should cause in the blood pressure. In perforation there is a determination of blood to the splanchnic area with marked pallor and a peculiar facies.

Dr. Hunter Robb inquired as to the occurrence of acute appendicitis with typhoid and whether a typhoid perforation had been reported in the appendix.

Dr. Harte said that the altered type of abdominal respiration must be an important symptom. Speed is valuable in all operations, and he regretted that surgeons do not insist on this point. Time can be saved if the surgeon and his assistant simultaneously examine opposite sides of the gut. On finding the perforation, the assistant can proceed with the irrigation while the surgeon closes the opening. He has performed the operation in twelve minutes, and fifteen should usually suffice. He uses a large amount of gauze drainage so that at times it is unnecessary to suture the abdominal wound. The changes in blood pressure are probably of value, but he has had no personal experience with them. He has seen several cases of perforating appendicitis and ordinary appendicitis during typhoid. He insisted on the advisability of the surgeon being familiar with the general condition and aspect of the seriously ill typhoid patients in the hospital, and the value of obtaining the patient's consent to operation in advance whenever typhoid perforation is feared.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held Feb. 8, 1905.

Dr. William T. Belfield in the Chair.

Present Limitations in Serumtherapy.

Dr. H. T. Ricketts said that inquiry into the value of diphtheria and tetanus antitoxins reveals the fact that the latter falls far below the former as to its therapeutic value. The antitoxin treatment of tetanus may be considered hopeless at present. The chief value of tetanus antitoxin is its prophylactic use, as it has been clearly demonstrated that if the antitoxin is given to a patient in whom there is any suspicion or likelihood of the development of tetanus, the disease does not develop. A striking example of this is seen in Fourth of July wounds. In some of the eastern hospitals, patients who received wounds on the Fourth of July and who were injected with tetanus antitoxin as a prophylactic, did not develop the disease. In a hospital in Prague a threatened epidemic of tetanus was controlled by giving prophylactic injections of tetanus antitoxin to all inmates in the institution. The therapeutic value of diphtheria antitoxin is so well established that little or nothing need be said regarding it. In regard to bactericidal serums, practically no results of value have been obtained in the treatment of established infections, as, for instance, antityphoid serum, anticholera serum or antiplague serum. Published statistics do not warrant the conclusion that so-called bactericidal serums are of any value in treating diseases. Antistreptococcic and pneumococcic sera are of very little value.

Plague and Late Cholera Epidemic in the Philippine Islands.

Dr. Paul C. Freer, superintendent of laboratories of the Philippine Islands, said that the Philippine Islands were visited by two cholera epidemics before American occupation, one in 1882 and the other in 1888, and in these years the mortality was very high. In Manila alone the records showed that there were as many as a thousand cases at one time. Both of these epidemics were serious, and, so far as could be discovered, very little was done to check them. During both of these epidemics Manila had no water supply except from wells, and it was after the second epidemic of 1888 that one of the former governor-generals gave a donation to start the Manila water supply works, which was completed afterward. The third cholera epidemic occurred during the American occupation and about three years after Americans landed on the islands. Dr. Freer referred to the organizations in the Philippine Islands and the scant means at hand for limiting the epidemic. In order to secure complete co-operation the Philippine Commission established the Board of Health. This was composed of a commissioner of public health, a secretary who was a Filipino, a chief health inspector, a sanitary engineer who took charge of the engineering department, and a superintendent of laboratories. When the Board of Health was organized, in 1901, it was without ambulances; it had no contagious disease hospital; it had no disinfecting apparatus and wagons, and means of transportation were very poor. The city of Manila was divided into seven districts, each in charge of a medical officer taken from the contract medical service. These officers, together with a corps of medical inspectors, began a system of house-to-house inspection. At this time the most serious disease was bubonic plague. Although the number had diminished markedly since American occupation, a recrudescence of the epidemic was feared. Many of the facilities acquired for controlling the plague epidemic were put to good use subsequently in dealing with cholera. A large barracks was constructed which would hold 2,500 people. When plague occurred in a house the patients were taken from it to the hospital, thus leaving the premises free for disinfection, etc. About December, 1901, three months after the plan was first discussed, there were constructed six barracks which accommodated a thousand people comfortably, and during the cholera epidemic they took in as many as 2,400 at one time. The Board of Health procured eight or nine ambulances and equipped itself as well as it could with disinfecting apparatus, etc. Whenever plague was suspected in a certain house a member of the laboratory staff was called in for diagnosis, and if the case proved to be plague the patient was taken to the hospital, or, if dead, to the morgue, and a radical alteration of the house undertaken; either its destruction by fire, if beyond repair, or complete rebuilding. It became necessary to destroy and rebuild whole districts in the city, and in this way plague was eradicated completely from the districts where it was prevalent. The main weapon against plague was the destruction of rats. In the first month the Board of Health destroyed about 2,000 rats, after which the number ran up to 20,000 a month. Fifty thousand rats were caught in the first three months. A large number of rats were examined at the laboratory for the plague bacillus. Two hundred and seventy-two rats were found to be infected with plague and had come from various houses. One-half of these houses were disinfected, burned down, if necessary, or altered. They managed to diminish the number of cases of plague by these measures so that in March, 1902, there was not a case of plague in the city, nor had there been one for three weeks.

Cholera patients were isolated in a contagious disease hospital. The houses in which cholera was most prevalent were burned first and the property appraised afterward. Two thousand people were taken out of the infected district and transported in wagons, ambulances, etc. The number of cases soon diminished until finally the disease was entirely controlled and eventually wiped out.

A serum laboratory has been established which produces all of the antitoxins and sera necessary for work in the tropics, including rinderpest serum. The Board of Health has procured new ambulances, has enlarged its disinfecting corps and has perfected district organization.

Chlorid Retention in Nephritis

Dr. Joseph L. Miller said that a review of the literature since Widal and Javal's original communication shows quite uniform confirmation of their views, that patients with acute and chronic parenchymatous nephritis have marked inability to eliminate chlorids. As a result of the retention, the patient increases in weight, due to edema. The albumin in the urine, following the ingestion of 10 grams of sodium chlorid daily, is increased and the patient may develop symptoms resembling uremia. In animals with artificial nephritis the use of salt increases the albumin. The organs of patients with nephritis show an excess of sodium chlorid. Kovesi has shown that nephritics, after the ingestion of large amounts of NaCl, do not perspire, due to increased osmotic pressure of the blood, and the edema is the result of this retained fluid As it has been shown that ingestion of large amounts of salt may increase the edema due to portal obstruction, cardiac insufficiency and even the inflammatory edema, many believe the chlorid retention may be of extrarenal origin. Miller studied two cases of acute and seven of chronic parenchymatous nephritis The chlorids were estimated by the Salkowski Volhard method for nine consecutive days. For three days in the middle of this period the patients received, in addition to their food, ten grams of sodium chlorid daily. All showed a retention of ten to twenty-five grams during the three days. The edema became more marked, the patients gained in weight, and the amount of albumin increased. Two patients showed uremic symptoms following the extra sodium chlorid Four normal individuals were examined in the same manner, and all showed a chlorid retention equal to the nephritis. They also gained in weight. From this it is concluded that these patients developed an undetectable edema, while in the nephritics with the tissues already waterlogged a moderate increase in edema could be detected. These patients did not show any albuminuria or uremic symptoms. As a final conclusion on this matter there is no doubt that sodium chlorid should be restricted in nephritis The broths and soups contain very large amounts of salt. Subcutaneous injections of salt solution must be used with caution, if at all.

ASSOCIATION OF CLINICAL ASSISTANTS OF WILLS HOSPITAL.

Regular Meeting, held Jan. 18, 1905.

Dr. J. Hiland Dewey in the Chair

Gumma of Iris and Ciliary Body.

Dr. Stanley S. Smith reported a case which presented all the characteristic symptoms of the condition, and which was fast becoming well. Dr. Smith stated that it was very instructive to note the secondary, rapid diminution of vision produced by haze in the media which probably had been caused by a deposition of the gummy infiltrates into the chambers of the eye.

Dr. John T. Krall commented on the comparative painlessness of specific cyclitis and the character of the infiltration into the aqueous and the vitreous which was chiefly composed of round-cell exudates. In support of the belief of others that gummata of the ciliary body usually occur on the upper border of the cornea, he had seen but one in which the swelling was situated on the lower side.

The various methods of administering mercury were informally discussed, the consensus of opinion being in favor of the use of mercurial ointment by inunctions.

Interstitial Keratitis.

Dr. Josephine W. Hildrup reported ten cases of interstitial keratitis. The ages of the patients varied from 6 to 58 years. The dyscrasia had been very carefully studied in all. Females had been preponderant in the series. With but one or two exceptions all of the cases had passed on to resolution.

DISCUSSION.

Dr. James A. Kearney stated that he had seen much good accrue from the use of inunctions of protoiodid of mercury.

Dr. Dewey had not had much experience with subconjunctival injections and had seen some unfortunate results, such as conjunctival ulceration, giving rise to disfigurement from their use.

Dr. Kearney exhibited a case in which the right eye was being treated by the ordinary routine methods, supplementing these by subconjunctival injections of common salt solution in the left eye, the latter organ (although the first involved) seeming to improve much more rapidly than its fellow.

Dr. Krall stated that he had learned to share the opinion of others that if injections were made under the conjunctiva their effects would be to produce a number of adhesions between the bulbar conjunctiva and Tenon's capsule, and stated that even though the injections were made into the capsule their good results were but transitory, as adhesions were sure to occur. He believed that such injections did more harm than good.

Double Pterygium.

Dr. Kearney presented a case of double pterygium in which one eye had been operated on by the von Arlt method and the other by the McReynolds.

DISCUSSION.

Dr. Krall was of the opinion that the McReynolds operation had no advantage over the von Arlt. He believed that every case should be treated on its own merits, one method of operation not being applicable to all.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.

CHICAGO.

(Continued from page 578.)

MEDICAL CLINICS.

The three great clinics of internal medicine in Vienna are led by Professor Hermann Nothnagel, Leopold Schröter and Eduard Neusser, respectively, and with these chief professors are associated a veritable host of younger assistant professors and privat docents, among whom may be mentioned Leopold Oser, Emil Ritt, v. Stoffela, Franz Chovstek, W. Winternitz, M. Heitler, N. Ortner, J. Pal, J. Mannaberg, H. Schlesinger, J. Drozda, A. Biach, A. Pick, F. Kovács, A. Hammerschlag, M. Sternberg, E. Schütz, M. Herz, A. Klein, F. Obermayer, R. Kolisch, J. Weiss, E. Schwarz, A. Strasser, A. v. Weismayr, W. Pauli, G. Singer, L. Braun, A. Katz, S. Erben, F. Pinelles, A Schiff, W. Türk, E. v. Czylharz, R. Schmidt, F. Wechsberg, J Donath and M. Weinberger.

Nothnagel has the first medical clinic, Neusser the second, and Schrötter the third. All three are at the Allgemeine Krankenhaus, Nothnagel's clinic being in the eighth hof, Neusser's in his special auditorium, and Schrötter's in the second hof. Each chief holds a clinic of two hours on five mornings of the week, nominally from 7 to 9 a. m., in which the courses on general clinical medicine are given. Assistants in each of the three clinics give courses on physical diagnosis (auscultation and percussion), and in addition courses in great number and variety on a multitude of special subjects in internal medicine are offered by assistants and docents. It has long added to Vienna's attractiveness, especially to American students, that one can at any time get a definite, cut-and-dried six weeks' course on almost any subject in the field of clinical medicine and surgery. Berlin has not gone so far in the provision of such courses, and I have heard many a student fresh from "finished" courses in Vienna complain on arriving in Berlin that he could find "nothing to do." There are advantages and disadvantages in the provision of courses of this kind; the advantages are obvious to all; to those to whom the disadvantages are not obvious, there would perhaps be but little use in explaining what they are. But I have always felt sorry for the student who on reaching Berlin could find "nothing to do."

One of the docents in internal medicine, especially, is held in very high esteem by American students who have worked with him. I mean Dr. Franz Kovács. Though in the university, he has never been advanced in rank beyond his docentship, he has a high hospital position, being Primärarzt to the fourth medical section of the Allgemeine Krankenhaus. Having heard so much of him as a teacher, I was especially interested in meeting him and in following him through his wards. He has an abundant material and studies it carefully. A quiet, earnest, and very serious man, he sets an excellent example of steady, systematic, conscientious clinical work. I was much impressed by the thoroughness of his routine, his careful analysis of the anamnesis, his very complete objective examination, his brief but sufficient description of the *status praesens*, the comprehensiveness of his diagnoses, his guarded prognoses and his efforts at rational therapy. His course entitled "Diagnostik innerer Krankheiten," which he repeats every four or six weeks, is always full to overflowing with men who need a fundamental training in the methods of clinical examination. He teaches his men to be orderly and systematic; he knows how to teach auscultation and percussion; how to make students properly palpate a spleen, etc.; and he also knows how, having made the objective examination, to teach them to differentiate between diseases which have physical signs more or less in common; in other words, his course includes just the sort of work that every medical student should do in the third and fourth years in the medical school; unfortunately, as yet the work is done as thoroughly as he does it in only a very few of our American medical schools. This course, then, is one which can be warmly recommended to many American physicians who go to Vienna for medical work, to anyone, in fact, who has not already had a thorough drill in the elementary facts and methods of internal medicine. For it is only after having had such a course somewhere that the physician is prepared to undertake higher work in internal medicine in clinics where studies of a more original character are carried on.

LABORATORY WORK.

The courses dealing with the clinical study of the blood and the chemical study of the stomach juice and feces are always popular in Vienna; those given by W. Türk and R. Schmidt, both docents in Neusser's clinic, I heard highly spoken of.

Of the assistants in internal medicine engaged in actual original research in Vienna, the privat docent Wolfgang Pauli is one of the most important. Thanks to a thorough training in physics under Mach, in chemistry under Hofmeister, and in physiology under Hering, he has brought to medicine a mind unusually well suited for attacking medical problems of a physical or physico-chemical nature. His studies of the phenomena of imbibition and of the alteration of the physical condition of colloid substances under the action of various reagents, and recently his pharmacodynamic investigations have compelled attention in a wide circle of those who interest themselves in the progress of higher experimental medicine. While the first two series of researches are at present of most interest to physiologists and physiologic chemists, the third series, dealing with pharmacodynamics, promises to be of fundamental importance for the practical medical man.[4] Pauli's studies, like those of Meyer and Overton on the theory of narcosis and Straub's work on the validity of the law of mass action for the distribution of certain poisons in the organism, go far toward showing that the methods of physical chemistry are to throw new light on, and to give to the physician a deeper understanding than can be obtained in any other way, of the action of drugs in the body. Dr. Pauli's work, like that of Professor Jacques Loeb, has to do largely with the action of ions, those electrically charged particles into which the various salts (electrolytes) dissociate when they are dissolved in water. As is well known, the mineral substances dissolved in the animal juices in the concentration in which they exist there are in largest part dissociated into their constituent ions. Professor G. N. Stewart's work on the electrical conductivity of the blood serum will be recalled in this connection. It is just as true that, if salts of the metals or alkalies be prescribed for patients, they act in the body through the ions into which they dissociate on solution in water. Even certain substances of pharmacologic importance which scarcely become ionized at all in aqueous solution, for example, the esters, may, inside the organism, be converted into ionizable substances.

Of all the constituents of the protoplasm of the cells, the proteid substances appear to stand in the most striking relation to the salts. Thus the solution of proteids, their precipitation, their coagulation by heat—are all remarkably influenced by the presence of salts, and Pauli has through a long series of experiments endeavored to determine more exactly the exact relations which exist.

It is known that the neutral salts of the alkali metals, of ammonium and magnesium, for example, stand in a very simple relation to the problems here under consideration; though these salts throw down precipitates of albumin, by dialysis of the salts the albumin can be reobtained almost entirely unaltered. The most important laws (according to Pauli) for these reversibilities of condition are as follows: If the salts be arranged according to their relative precipitating power, for every metal-ion (kation) the same series of acid-ions (anions) holds good, and, *vice versa*, for every acid-ion (anion) the same arrangement of kations. The precipitating effect of salt is therefore the resultant of the precipitating effects of its constituent ions and these ion-properties are in high degree independent of one another.

A second law refers to the nature of the influence of the ions. It has been found that the ions of the salts when acting on proteid substances may antagonize one another, one acting as a precipitant, the other as a solvent, and accordingly as the influence of the one or the other ion predominates, the salt concerned causes or hinders the precipitation of albumin. The ions of salts arranged according to their respective value make the following series:

Kations (according to decreasing precipitating power): Natrium, kalium, ammonium, magnesium.

Anions (according to increasing capacity for preventing precipitation): Sulphate, citrate, tartrate, acetate, chlorid, nitrate, bromid, iodid, sulpho-cyanid (or rhodanate).

The salts of the alkaline earth metals differ in their effect from those of the neutral salts of the alkali metals. Thus the salts of the alkaline earth metals bring about a precipitation of albumin that is irreversible in the sense that a precipitation once set in is difficult to inhibit; a return to unaltered albumin is scarcely possible. The effect of calcium, stronium and barium is in high degree variable, according to the presence or absence of other ions. Curiously enough, here the ions composing the alkali salts though opposed to one another in action, have an effect exactly opposite to that observable in precipitation of albumin with the pure neutral salts of the alkalies. Thus precipitation produced by the earth-alkalies is favored by anions and hindered by kations. The anions arranged in order of increasing power of favoring precipitation form the series: Acetate, chlorid, nitrate, bromid, iodid, and sulpho-cyanid; kations arranged in decreasing dissolving power form the series: Magnesium, ammonium, kalium, natrium.

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[4] Cf. Pauli, W. Ueber den Zusammenhang physiko-chemischer Eigenschaften und arzneilicher Wirkung. Vorgetragen auf dem Kongress f. innere Medizin in Leipzig, 1904.

But how, it may be asked, can these facts, learned from test-tube experiments, be applied to the study of ion action on the albuminous substances of the protoplasm of living cells? In studying the physiologic effects of the ions of salts, it has been found that the additive and antagonistic effects of ions are similarly observable in the living body. For example, it is a property common to all kations that they increase to a greater or less extent the excitability of muscles and nerves, that they stimulate the activity of the gastrointestinal tract[5], and, usually, they increase the blood pressure. And again, the physiologic effects of anions, like their albumin dissolving power, become more and more marked as the above series is descended; the sulphates, citrates, and tartrates which precipitate albumin also act as purgatives; the other salts, especially the nitrates, bromids, iodids, and sulphocyanids, act, on the contrary, as sedatives and, further, tend to lower the blood pressure. The allied nature of the latter anions is also shown by the production by all of them in certain susceptible individuals of unpleasant complications like acne and coryza. The similarity of behavior of the sulphocyanids to that of the iodids and bromids in experiments *in vitro* led Pauli to expect a similar pharmacologic effect, and his experiments on the treatment of tertiary syphilis with sulphocyanid of soda (*Rhodan-natrium*) have shown that much may be hoped from "rhodantherapy" in some cases.[6] In one patient, with syphilis of the bones of the skull and syphilitic involvement of the sternoclavicular articulation, the administration of small doses of rhodan-natrium led to a rapid recovery.

The sulphocyanid anion or "sulphocyanion" stands at the end of the series of the monovalent anions and appears to be the most powerful of them all. Pauli made an interesting series of experiments to determine the difference in action between the salt, sodium sulphocyanid, and the ester, amylsulphocyanid. In aqueous solution, the salt dissociates into its ions, natrium and sulphocyanion, the ester scarcely if at all. But the ester, by virtue of its solubility in fats, can, as Overton's studies have shown, easily penetrate into the interior of the cells, while the soda salt (or its ions) cannot enter easily. But inside the cells an ester is saponified, so that, from the amylsulphocyanid, sulphocyanic acid would be set free, and as this acid dissociates into its ions, viz.: hydrion and sulphocyanion, it might be expected that the physiologic effect of the sulphocyanion would, under favorable conditions, be obtained. The experiments proved that with both sodium sulphocyanid and amylsulphocyanid, that is to say, with both the salt and the ester, a typical sulphocyanid poisoning can be produced. But the following remarkable observations were made: While two or three drops of the ester given intravenously rapidly killed the animal, to get the same effect from the sodium salt, some eight or ten grams had to be injected. The explanation of the enormous difference in action doubtless lies in the solubility of the ester in the cell lipoids, permitting quick penetration; the ions of the dissociated salt penetrating only with great difficulty into the interior of the cells, a far greater amount of the substance had to be introduced to produce the same effect.

It seems further that substances that act as local anesthetics have anions united in an ester-like combination; as undissociated ester they enter the cells quickly; once inside they are saponified and as the resulting acid dissociates into hydrion and anion, the latter can exercise its anesthetic influence on the sensory nerve-ending. Thus cocain itself is the methylester of benzoylecgonin, one of the tropin-carbonic acids. The acid alone is twenty times less active than the ester. And many other examples might be given.

Mention was made above of the fact that certain ions increase the precipitating power of the alkaline-earth kations, others inhibit it. It occurred to Pauli that the same combinations which *in vitro* increase the precipitation of albumin, ought to increase the toxicity in the animal body; and experiment supported this hypothesis. Thus, for example, the toxicity of an amount of sulphocyanid that would ordinarily have only a slight and temporary effect can be so increased by the exhibition of small doses of salts of the alkaline earths, doses in themselves non-toxic, that the beat of the heart will be suddenly arrested.

The results of the experiments of Loeb, made in an entirely different field namely that of experimental embryology, are so closely in accord with those of Pauli that one can not help but feel that this new path which is being blazed through the forest is sure to lead us to new possessions, the value of which we can as yet scarcely guess. And in making these new possessions accessible to us American investigators, if present indications are an index to the future, are to play no inactive part. In addition to the brilliant experiments of Loeb himself, and those of J. B. MacCallum already referred to, we have the work of Ralph Lillie on the antagonism of the kation effect on the movement of cilia, that of Martin Fischer on the suppression of a glycosuria due to the action of natrium ions by the administration of calcium, that of Brown in which it was shown that the calcium could be replaced by strontium, and that of Sollmann of Cleveland on the effects of other anions on the excretion of chlorin in the urine.

(*To be continued.*)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Bronchitis.

The different forms of bronchitis may be classified as follows:

1. Acute bronchitis.
    a. Of the larger tubes.
    b. Of the smaller tubes.
2. Chronic bronchitis.

In making a finer division of the different forms of bronchitis Hoffmann, in "Nothnagel's Encyc. of Med.," enumerates thirteen different forms of bronchitis depending on the etiology rather than on the pathologic basis. Among these is "catching cold." One contracts "a cold," according to Hoffmann, because the body or some part of it suffers a sudden deprivation of heat and fails to react as vigorously as it would under normal conditions. The nervous system is not always sufficiently vigilant and the mechanisms which regulate these changes are not always energetic enough, consequently abnormal conditions arise. So in taking cold, he goes on to state, one can suppose that there is a loosening of the epithelium of the bronchi, with the development of small, thin places, in consequence of this sudden change of temperature, in people who are not properly hardened; as a result dust and micro-organisms penetrate into and cause desquamation of these thinner layers of the epithelium and thus produce a catarrhal inflammation. It must not be overlooked, however, that one individual does not show the same degree of susceptibility that may be shown by another.

TREATMENT.

In regard to internal medication, the author mentions those drugs which act on the respiratory centers as sedatives, such as opium and hydrocyanic acid; and those which act as stimulants, such as belladonna, strychnia, ammonia, ipecacuanha and senega. He also mentions drugs which influence the activity of the glands as sedatives—acids, belladonna, senega and scilla;

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[5] The reader will recall the interesting results obtained by J. B. MacCallum of Berkeley in his study of the mode of action of the saline cathartics.

[6] Pauli W., Zur Kenntnis der Rhodantherapie, Centralbl. f. d. ges. Therap., vol. xxii, 1904.

and those which stimulate—alkalies, pilocarpin, apomorphin, ipecac and tartar emetic.

Musser recommends the following outline of treatment in those cases of acute bronchitis which begin with a cold and coryza followed by laryngitis and bronchitis. In the beginning a brisk hydragogue cathartic is given, such as elaterium if the patient is robust, or with a full dose of Dover's powder at bedtime and a hot footbath. If there is much headache and frontal pain the following is recommended:

℞.	Camphoræ	gr. i		06
	Ext. belladonnæ	gr. i iss		06-.09
	Quin. sulph.	gr i-ii		06-.12
	Morph. Sulph.	gr. 1/40		0015

M. Ft. cap. No. i. Sig.: One capsule every half hour for four doses; then every three hours.

If the skin is hot and dry and the patient is restless, one grain (.06) of Dover's powder may be substituted for the morphin. The nares should be well irrigated with an antiseptic solution such as boric acid, or carbolic acid lotions and cocain may be used, if applied carefully, to relieve the congested nares. In cases accompanied by laryngitis, a cold compress should be used at night and an inhalation of benzoin, using the tincture, dram one (4.00) in a pint of boiling water. A purgative and diaphoretic should be employed also, as that is very efficient treatment in these cases. When a bronchitis has developed and when there is a feeling of oppression in the chest, with a tight, dry cough, the following combinations are recommended:

℞.	Quin. sulph	gr. i-ii		06-.12
	Pulv. ipecac. et opii	gr. i		06
	Salicin	gr. i		06

M Ft. cap. No i. Sig: Two such capsules to be taken at one dose, two in two hours, then one every three hours Or:

℞.	Mist. potass. cit.	℥ii	60	

Sig.: One tablespoonful every two hours. Or:

℞.	Pot. iodidi	gr. xlv	3	
	Vini ipecacuanhæ	ʒii	8	
	Misturæ glycyrrhizæ co. q. s. ad	℥iii	90	

M Sig.: One teaspoonful every two or three hours.

The following may, in some cases, have to be resorted to in order to relieve the severe cough and oppression·

℞	Syr. ipecacuanhæ.			
	Syr sanguinariæ.			
	Syr scillæ, āā	ʒii	8	
	Syr pruni virg. q. s ad.	℥ii	60	

M Sig: From one half to one teaspoonful every two or three hours

In the moist stage he recommends ammonium chlorid, terpin hydrate and tar preparations combined as follows:

℞.	Ammonii chloridi	ʒi	4	
	Terpin hydratis	ʒi	4	
	Pulv. opii et ipécacuanhæ	gr xxiv	1	60

M. Ft cap No. xxiv. Sig.: One or two capsules, according to age, every two or three hours.

If the cough is easy and the expectoration free, the opiate may be omitted or tar in doses of grains two (.12) may be substituted or the following combination employed:

℞.	Ammonii chloridi	ʒi	4	
	Vini picis liquidæ	℥iss	45	
	Syr glycyrrhizæ co.	℥iss	45	

M Sig.: Two teaspoonfuls every two or three hours

If there is venous rather than arterial hyperemia, stimulants such as strychnia and digitalis are of service Otherwise they may aggravate the condition.

At the onset of a cold leading up to a bronchitis, Dr R W. Parsons of Ossining, N. Y., recommends the following outline of treatment:

℞.	Spts. camphoræ	ʒss	2	
	Aquæ	℥iv	120	

M. Sig: Shake; two teaspoonfuls every hour until relieved

He recommends as a spray the following combination containing adrenalin:

℞.	Sol. adrenalin chloridi (1-1,000)	ʒii	8	
	Sol. sodii chloridi (normal)	℥iiss	75	

M. Sig.: Use as a spray in the nose every hour until relieved. Keep the atomizer in a dark place when not in use.

For patients who reside in cities and for those whose business requires them to travel, the use of a very mild alkaline and antiseptic spray is recommended, to be used twice daily.

In cases of chronic bronchitis with bronchorrhea the following is recommended by Bartholow:

℞.	Ext. eucalypti fl.	℥i	30	
	Ammonii chloridi	ʒii	8	
	Ext. glycyrrhizæ fl	℥i	30	
	Glycerini	℥iii	90	

M. Sig.: One teaspoonful in water four or five times daily

In some cases he recommends the following as an expectorant:

℞.	Tinct. sanguinariæ	ʒi	4	
	Tinct. lobeliæ	ʒi	4	
	Vini ipecacuanhæ	ʒii	8	
	Syr. tolutani	℥ss	15	

M. Sig.: One teaspoonful every three hours.

Where there is chronic bronchial catarrh with profuse secretion, the following combination is recommended:

℞.	Terpin. hydratis	gr. xv	1	
	Alcoholis	ʒiv	15	
	Syr. simplicis	℥iss	45	
	Aquæ q. s. ad.	℥iv	120	

M. Sig: Two teaspoonfuls every three hours.

When the cough is dry the following is recommended.

℞.	Potass. iodidi	ʒss	2	
	Sodii bicarb	ʒii	8	
	Ammonii chloridi	ʒi	4	
	Aq. chloroformi q s. ad.	℥iv	120	

M. Sig.: One tablespoonful every four hours in water

A combination of tar and benzoin is of value in cases of chronic bronchial catarrh:

℞.	Picis.			
	Pulv. benzoini, āā	gr. xxx	2	
	Pulv. ipecacuanhæ comp.	gr. x		65

M. Ft pil. No xv. Sig.: One or two pills to be taken three times a day.

In catarrhal conditions confined to the larger bronchi the following combination is of value:

℞.	Terpin hydratis	gr. iv		25
	Heroin hydrochlor	gr. 1/24		0025

M. Ft. cap No. i. Sig.: One such capsule four times a day.

In the chronic form of winter cough terebene is recommended, given in capsule form or dropped on sugar, in doses ranging from 5 to 20 minims (.30-1.30), or, as Yeo advises, made into an emulsion as follows:

℞.	Terebene	ʒii	8	
	Mucilaginis tragacanthæ q. s. ad	℥iii	90	

M. Sig.: Two teaspoonfuls four times a day

It can be used in the form of a spray or on a sponge

In certain cases of the chronic forms of bronchitis accompanied by bronchorrhea Wilson, in the "Textbook of Applied Ther." states that stimulating expectorants *may be useful, but* that the majority are rapidly relieved by the "alterative" use of balsams and allied remedies.

Inhalations of atomized mixtures are of value and the following combinations are recommended by this writer:

℞.	Acidi gallici	gr. xxx	2	
	Tinct. opii deod	ʒiv	15	
	Glycerini	℥i	30	
	Aquæ menth pip q s. ad	℥iv	120	

M. and filter Sig Inhale from an atomizer three or four times daily.

Internally the following may be given·

℞.	Ammon. chloridi	ʒii	8	
	Tinct. opii camph.			
	Syrupi senegæ, āā	℥i	30	
	Syr. tolutani q s. ad	℥iv	120	

M. Sig.: One teaspoonful every three hours, unless asleep Or:

℞.	Copaibæ	gtt. xx	1	30
	Pulv. opii	gr. ii		12
	Pulv. acaciæ q. s.			

M. Ft. cap. No. x. Sig.: One capsule every three hours

In cases of bronchiectasis, where the sputum is expectorated once or twice a day in large quantities and is offensive, antiseptics should be employed. Turpentine should be given in emulsion in doses of five minims (.30) every three or four hours. Terebene may be given in capsule in doses of five minims (.30) every four or five hours.

Benzoic acid, in doses of five grains (.30), every three or four hours is a very efficient remedy. The intratracheal injection of menthol and guaiacol with olive oil is a well recommended remedy where there is dilatation of the bronchi:

R.	Menthol	ʒi	4
	Guaiacol	ʒii	8
	Ol. olivæ	℥i-℥iss	30-45

M. Sig.: Inject one dram into the trachea twice daily.

The idea of "coughing downward" in these cases may prove valuable, directing the patient to lie on the bed with one hand on the floor and the head almost reaching the floor, so that the fluid will run out of the dilated bronchi assisted by coughing.

Preventive Treatment of False Croup.

The *Gaz. Méd. Belge* states that a French physician, Dr. Couder of Alençon, advises mothers to wake up their children every hour during the night when they are threatened with false croup. The catarrhal condition causes a viscous, adherent secretion. During the day the secretion is constantly removed by the swallowing and coughing of the child, but at night, during heavy sleep, the secretion becomes dry and hard. The passages are more or less swollen, and the hardening of the secretion obstructs them more and more until the child wakes suffocating. When its breathing becomes sibilant or choked, it should be aroused, set up and coaxed to drink some warm fluid. This softens the secretions and they are swallowed or coughed up, and all trouble from this cause is avoided. It is seldom necessary to rouse the child oftener than once an hour, and not at all after 2 a. m.

Treatment of Whooping Cough.

R. Millon of Paris is amazed at the way in which his confrères generally neglect the treatment of whooping cough. He thinks this is due partially to the saying of J. Franck, long ago, to the effect that "you can kill a whooping-cough child before the affection has run its course, but you can never cure him." This saying elicited from Cadet de Grassicourt the remark that there is nothing more dangerous in medicine than physicians who like to make witty epigrams. Millon treats whooping cough by keeping the patient in his room during the febrile, catarrhal stage, when the paroxysms are progressively frequent. After the paroxysms have reached a stationary phase he allows the patient to leave his room and go out of doors, if the weather is favorable, when the râles have vanished. When the paroxysms begin to subside he advises out-of-door life, strolls and change of air.

℞.	Potass. brom.	gr. xxx	2
	Antipyrini	gr. xv	1
	Syr. codeinæ	ʒv	20
	Syr. tolutani	℥iv	120

M. Sig.: Dose, one teaspoonful.

Syrup of codein is composed of: Codein phos, gr. xl: aqua, drams 2, and syrup, drams 20.

Antipyrin alone is peculiarly efficient for infants. He has sometimes been able to abort a paroxysm by the Naegeli maneuver, pulling the lower jaw forward. He teaches the child to control the impulse to cough, and he treats the nasopharyngeal inflammation with iodized glycerin or with some other tonic.

Medicolegal.

Questions that May Be Asked Experts in Injury Cases.—The St. Louis Court of Appeals says, in the personal injury case of Holden vs. Missouri Railroad Co., that on examination of an expert concerning a personal injury, a question may be either as to the cause of the injury or condition, or, conversely, what would be the effect on the body of such a force or blow, or, in the presence of a given effect, what would cause it or might result therefrom.

Corporation Not Liable for Services to Employes.—The Appellate term of the Supreme Court says that judgment was rendered in the case of Harris vs. Vienna Ice Cream Co. in favor of the plaintiff, a physician, for professional services rendered to two of the employes of the company, as alleged, "at the special request" of the latter. Granting (which was disputed) that the president and secretary of the company requested the services, and on behalf of the company promised remuneration therefor, the record was without evidence to show that the services rendered were for its benefit or in satisfaction of a claim, if any there might be, against it. Persons dealing with the officers of a corporation, or with persons assuming to represent it, are chargeable with notice of the purpose of its creation and its powers, and with the authority, actual or apparent, of its officers or agents with whom they deal. The contract in suit could not be said to fall within the purpose of the creation of the Vienna Ice Cream Company, nor did the evidence disclose corporate benefit, or authority, actual or apparent, in its president or secretary, to obligate it in the particular instance. Individually liable they might be, but not the corporation whose officers they may be. The judgment must therefore be reversed, and a new trial ordered, with costs to the company to abide the event.

Belief in Future Life is No Evidence of Insane Delusion.—The Supreme Court of Illinois says, in Scott vs. Scott, that the great majority of civilized human beings believe in the existence of a life beyond the grave. The fact that an individual holds any particular belief in regard to a future state of existence can not, of itself, be evidence of an insane delusion or of monomania. An insane delusion is a belief in something impossible in the nature of things, or impossible under the circumstances surrounding the afflicted individual, and which refuses to yield either to evidence or reason. Such a delusion does not exist unless it is one whose fallacy can be certainly demonstrated, for, except such demonstration can be made, it can not be said that no rational person would entertain the belief. Consequently, no creed or religious belief, in so far as it pertains to an existence after death, can be regarded as a delusion, because there is no test by which it can be tried and its truth or falsity demonstrated. It follows, therefore, the court holds with reference to this particular case, that a belief in Swedenborgianism, and enthusiasm manifested in propagating that faith, furnish no evidence of monomania, insane delusion, or insanity.

Use of Mortuary Tables—Proof in Injury Cases.—The Supreme Court of Nebraska holds, in City of South Omaha vs. Sutliffe, a personal injury case brought by the latter party, that, while the Carlisle and other mortuary tables of accepted accuracy and in general use are always properly admissible in evidence for the purpose of aiding a court or jury in determining the probable expectancy of life, when such fact is in issue, yet, when admitted these mortuary tables are not binding on the estimate of the triers of such fact. They may, without such tables, make their own estimate from the age, health, habits, physical condition and appearance of the person whose expectancy is at issue. In actions for personal injuries it is not necessary to specially allege every direct injury to each part of the body, to lay the foundation for such proof on the trial. Such proof may be admitted when the injury alleged is shown to have been the natural and proximate cause of the injury proven. When medical testimony is relied on to prove the cause or effect of a physical injury, it seldom goes further than an opinion based on the experience of the witness and the general learning of the profession. Positive statements of fact are seldom indulged in by physicians when testifying as experts, and yet this character of testimony is universally admitted by the courts of this country.

Proper Questions as to Sudden Development of Diphtheria.—The Second Appellate Division of the Supreme Court of New York reverses, for error in the exclusion of evidence, a judgment for $500 damages in [illegible]actice case of Purcell vs.

Jessup. When the physician was called in the first instance to see the plaintiff's little daughter she appeared to have been suffering from an attack of the measles. The physician admitted that she died about a week later of diphtheria, "joined to bronchopneumonia and measles." The theory of the plaintiff's case, as presented on trial, was that the diphtheria which caused the patient's death was developed at least two days before she died; that the physician ignorantly or negligently failed to detect the presence of the disease, and that, if he had possessed the knowledge and skill which the law requires on the part of a medical man, and had exercised the same, he could and would have effected a cure. The physician maintained that the diphtheria developed twelve hours before the girl's death, and was first manifest after a visit which he had paid to her on the day previous to the one on which she died, on which latter day he found her in a dying condition, beyond help by any means in his power. A physician and surgeon of thirty years' practice, residing on Staten Island and connected for twenty-five years with the Smith Infirmary, was called as an expert witness in his behalf, and testified, in answer to a hypothetical question, that the treatment of the child was proper and everything that it should have been. After stating that a fatal result, according to the experience of the medical profession, could occur in a case of diphtheria in a period varying from a few hours to days in length, he was asked: "In your opinion and medical experience, is it possible for a child to show no symptoms of diphtheria on one day, and develop a fatal case of diphtheria the next?" This question was objected to, and the objections sustained. The court thinks it quite clear that the evidence which it sought to elicit was material and important, and that the exclusion of such evidence may well have operated to the injury of the defendant. The essential feature of his defense was that the fatal attack of diphtheria had developed within a few hours after he last saw the child before the day of her death, and he insisted that there were no indications of the existence of the malady on the occasion of his previous visit. In accepting or rejecting this defense, the jury might properly be largely influenced by what was proved to have been the experience of the medical profession in regard to the probability or possibility that diphtheria could manifest itself thus suddenly and without previous sign. The question called not only for the opinion of the expert witness on that subject, but also for his actual experience. Both should have been permitted to be laid before the jury. The opinion of a medical man is admissible, as a general rule, on questions peculiarly within his knowledge as such. The witness was certainly competent to give opinion evidence, as well as to state his actual personal experience in regard to the suddenness of the onset in cases of diphtheria, the absence of any signs of the development of the disease preceding such onset, and the rapidity of the progress of the malady to a fatal result after its development. In a case of this character it can not fairly be held that such evidence would not have effect and weight with a jury. It is not difficult to see that, if it had been admitted, it might have relieved the defendant from a verdict which, if allowed to stand, would constitute a permanent injury to his professional standing, inasmuch as it involved the conclusion that a human life had been lost through his incompetency or carelessness.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 11.

1 *Some Forms of Insanity Due to Alcohol. C. K. Mills, Philadelphia.
2 History and Development of Surgery During the Past Century. [illegible] F. S. Dennis, New York City.
(To be [illegible] E. Barker, London.
3 *Subcutane[illegible] Disease Complicating Diabetes
4 *Bezold's [illegible] Philadelphia.
Mellitus. S. M. Smith, Phi[illegible] Ransdell, Washington.
5 *Pneumonia and Pregnancy. R[illegible]

1. **Insanity Due to Alcohol.**—Mills discusses the different forms of acute and chronic alcoholic insanity with medicolegal bearings; these including, although in relative degree, almost all types of alcoholic mental disorder. He classes dipsomania with the impulsive insanities, and emphasizes the distinction between dipsomania and inebriety with periods of great excess, and also between dipsomania and other forms of alcoholism.

3. **Subcutaneous Alimentation.**—Barker relates his experience with the use of subcutaneous and intravenous infusions of physiologic saline solution and of glucose, the latter being added as a food. The saline infusion introduces water into the body, dilutes the toxins and increases their elimination. Saline solution may also be made the means of conveying oxygen to the blood directly, thus stimulating the heart in cases of shock. The method is to shake up with warm saline solution about one-tenth of its volume of pure oxygen and to introduce this by puncture into a vein. So far, it has been only a question of supplying water to the tissues, the sodium chlorid being added for the purpose of rendering the solution isotonic with the blood. An almost equally important consideration remains. Is it possible to supply subcutaneously, or intravenously, a fluid which will take the part of a food? Such a fluid should be easily made, easily absorbed and assimilated, and otherwise harmless. Glucose is a food of considerable value; it is easy to procure, is very soluble and, in proper amount, is perfectly safe when injected under the skin. In order that water or sugar may be introduced into the tissues safely, it is necessary to have the solution absolutely sterile. To do this, the substances used must be able to withstand boiling without alteration. The fluid must be first carefully graduated, so that its osmotic tension is actually, or very nearly, that of the blood. A 5 per cent. solution of glucose in pure distilled water will lower the freezing point to —0.56 C, thus making it isotonic with the blood. Such a solution will keep for a considerable time, if sterilized by boiling, but it is best not to trust the sterility of such solutions too much. They should be injected at about blood heat. For injecting the solution, Barker uses a hollow needle of 1 mm. bore, three feet of small-sized rubber tubing attached to it, with a four-ounce glass syringe, without a piston, fixed to the other end. This latter is held about two feet above the patient's bed and is filled with the solution and covered with a piece of sterile gauze. When the tubing and needle are quite full and free from air, the needle is thrust through a fold of skin on the inner aspect of the upper arm toward the axilla and the fluid is allowed to run in, being replaced from above without removing the needle. This method has proved uniformly satisfactory.

4. **Mastoid Disease Complicating Diabetes Mellitus.**—In support of the view that the pathologic process in diabetes mellitus involving the organ of hearing begins as a primary osteitis of the mastoid process, extending secondarily to the tympanic cavity, Smith cites one case. The patient, a male, aged 41, had been suffering from diabetes for one year when he developed severe pain on the left side of the head and mastoid. A swelling developed immediately below the mastoid tip, which gradually enlarged until it reached a point about an inch above the clavicle. Pain never was referred to the middle ear, and there was not at any time swelling or redness over the process. A Schwartze-Stacke operation was done. A large carious opening was found perforating the tip of the mastoid process, and the antrum and superior part of the cells presented the dry, gangrenous or necrotic appearance so characteristic of the diabetic diathesis. The tip was bathed in pus, which covered a mass of foul-smelling granulation tissue. Smith concludes: 1. That aural complications of diabetes mellitus may be manifested by the classic mastoid symptoms without involving the tympanic cavity. 2. That this condition is peculiar to diabetes mellitus. 3. That the term "diabetic ear" should be limited to those cases in which the disease begins as a primary osteitis of the mastoid, or in which primary tympanic involvement and rapid mastoid complications seem simultaneous.

5. **Pneumonia and Pregnancy.**—Ransdell collected 350 cases from the literature and found that the death rate from pneumonia is appreciably higher in the pregnant woman than in the ordinary patient. Abortion takes place in more than half the patients, and the mortality is much higher when abortion does occur than when it does not. The mortality also is higher in the last three months of pregnancy. The causes of death can be attributed to: 1. Diminution in hemo globin; 2. degenerative changes in the heart muscle; 3, overloading of the right heart and pulmonary circulation after birth. It is evident that the high percentage of abortions is due to accumulation of carbonic acid in the blood.

Boston Medical and Surgical Journal.

February 9.

6 *Case of Chylous Cyst of the Abdomen. M. H. Richardson, Boston.
7 *Active Treatment of Gonorrhea in Its Early Stages F. J. Cotton, Boston.
8 Glycosuria in Pregnancy. J. M. Jackson and James R. Torbert, Boston.
9 *I. K. I. Method of Sterilizing Catgut. F. W. Johnson, Boston.

6. **Chylous Cyst of Abdomen.**—The symptoms presented by Richardson's patient were those of nervousness and, at times, acute indigestion. Occasionally he could not get his breath, and about a year before his presentment began to have what seemed to be "falling spells," which the family interpreted as choreic manifestations. Over the epigastrium, on both sides, the thorax was much dilated, the fluid pushed out the costal margins in all directions. The abdomen was much distended and contained fluid. A diagnosis of tubercular peritonitis was made and operation was advised. On opening the peritoneal cavity, Richardson came on a white, fragile-walled cyst covered with small blood vessels, most of which ran transversely. The tumor was retroperitoneal, extending up under the liver and to the right, and contained eight pints of a chylous fluid. It was impossible to make out whether the cyst was a dilatation of the receptaculum chyli or one of its tributaries. No dilated lymph vessels were seen. The patient made an uneventful recovery.

7. **Treatment of Gonorrhea in Early Stages.**—Cotton believes that all cases of early acute gonorrhea, except in the presence of some complication such as phimosis or acute folliculitis, do better under active irrigation, and that the organic silver preparations, used in combination with profuse bland irrigations, accomplish definite results by germicidal action.

9. **I. K. I. Method of Sterilizing Catgut.**—Johnson describes his method as follows: Get clean, strong gut that has no odor and is free from fat. Before sterilization each strand should be thoroughly stretched. The gut should be wound on wide reels, if possible, and too much gut must not be put on any one reel, so that the solution will have ready access to the deeper layers of the gut. Before using, the gut should be washed in sterile water—not allowed to soak in it. The reel or spool can then be placed on a sterile sponge or gauze and, when the operation is finished, dropped back into the common jar, to be used at the next operation. The solution used consists of iodin, 1 part; iodid of potassium, sufficient quantity to saturate, and distilled water sufficient to make 100 parts. Gut sealed in tubes in the I. K. I. solution and kept from the light will become friable in about three months. I. K. I. gut should not be used in plastic work in the vagina, as iodin irritates the mucous membrane, making it an excellent culture medium for micro organisms. The reels used by Johnson are made of papier maché. They can be made of the desired size and notched so that the size wanted can be seen before removal from the I. K. I. solution. The advantages of this method are the absolute certainty of a sterile gut, ease of preparation, healing by first intention and an animal suture material that will not slip and that will tie like silk.

Medical News, New York.

February 11.

10 *Report of a Sporadic Outbreak of Typhoid Fever at Lawrence, N. Y., Due to Oysters George A. Soper, New York
11 *Hematuria as a Symptom of Hydronephrosis. Nephrectomy. Cure. L. Bangs, New York.
12 *Two Cases of Tracheal Stenosis from New Growth. George E. Brewer, New York.
13 *Management of Acute General Peritonitis. J. Garland Sherrill, Louisville.
14 Clinical Manifestations of Uterine Fibroids, as Indications for Early Operative Intervention. Arnold Sturmdorf, New York.

10. **Typhoid Epidemic Due to Oysters.**—Soper reports the results of his investigations into the cause of the outbreak of typhoid at Lawrence, N. Y., which was found to be due to the pollution of oyster beds by sewage.

11. **Hematuria in Hydronephrosis.**—Bangs discusses hematuria as a symptom of hydronephrosis. A thorough and careful review of the literature failed to discover any cases of this kind, except in one instance, in a series of 40 cases, among them being 9 cases in which hematuria was a symptom. He adds one case to the list. The patient was a male, aged 19. The presence of blood in the urine was intermittent and variable in quantity, the latter being increased by slight trauma, such as jolting in a wagon and by the manipulations of the kidneys necessary to a diagnosis. It was also suddenly increased by unknown causes, but at no time was there a serious amount of blood in the urine. The Harris separator was used, disclosing that the left kidney was the seat of disease. Based on all the symptoms present, the diagnosis of hydronephrosis was made. The kidney was reached by means of the Mayo-Robson method and was found to contain about a quart of fluid. Comparatively little renal tissue was left. There was a moderately free hemorrhage from the interior of the sac, which was controlled by free irrigation with very hot water. A nephrectomy was not performed until some months later. During the operation the sac bled freely from its interior. The hemorrhage continued free and uncontrollable until the liberated parts of the sac were folded on themselves, and the amount of hemorrhage from the thin and expanded kidney tissue was sufficiently great to cause a very serious condition of collapse. The patient made an uneventful recovery. A small flexible bougie was passed through the ureter to the bladder to demonstrate the absence of any obstruction between the kidney and bladder. At the time of the nephrotomy there was no calculus either in the kidney or its pelvis, and no obstruction of any kind elsewhere. The microscopic appearance of the tissues was typical of hydronephrosis. The etiology of the condition in this case was very obscure. The patient had had unusually good health from his infancy up; there was no history of traumatism; no history of renal colic nor of pain in the left side, and no symptom indicating the beginning of the malady until it was fully developed. Bangs lays special stress on hematuria as a symptom of hydronephrosis and repeatedly calls attention to the degree of hemorrhage during the two operations.

12. **Tracheal Stenosis.**—The two cases of tracheal stenosis reported by Brewer, and which necessitated grave operative procedures for their relief, were a papilloma of the trachea following tracheotomy for the relief of papillomatous degeneration of the laryngeal mucous membrane, occurring in a boy 11 years old, and an adenocarcinoma of the accessory thyroid gland occurring in a man, aged 52.

13. See abstract in THE JOURNAL, Jan. 7, p. 60. (Sherrill.)

Medical Record, New York.

February 11.

15 *Attractive Features of Graduated Tenotomies on the Eye Muscles. A. L. Ranney, New York City.
16 Some Relations of Medicine and Surgery to Jurisprudence. Carl Beck, New York.
17 *Choice of a General Anesthetic and Selection of Method of Administration. V. C. Pedersen, New York.
18 *Cryoscopy of Cerebrospinal Fluid in Epidemic Cerebrospinal Meningitis. J. H. Bailey, New York.
19 *Foreign Body in Bronchus Removed with Bronchoscope; Recovery. S. Yankauer, New York.
20 *Spindle-cell Sarcoma of Bowel Operated on Successfully. J. B. Boucher, Hartford, Conn.

15. **Graduated Tenotomies on Eye Muscles.**—Ranney cites 20 cases illustrating the curative effects that a complete relief of eye strain by graduated tenotomies can afford in many

forms of nervous derangement which had no apparent connection with eyestrain and which had proved to be incurable by drugs. Some of the patients were not aware of the existence of any symptoms that had indicated to themselves or to their medical advisors that the eyes were in any way abnormal. Among the patients treated were cases of asthenopia, associated with repeated physical breakdowns; epiphora of years' duration, extreme deformity from wryneck, epilepsy, insanity, nervous prostration, chorea, followed by paralysis; progressive atrophy of muscles in both hands, with partial loss of use of right hand, and an associated diabetes; complete loss of the intellectual faculties, uncontrollable neuralgia, sleeplessness and nervous prostration; uncontrollable attacks of vomiting, with loss of power and sensation in both arms and a suspected tuberculosis. Ranney urges that it is essential to success that the refractive errors of all patients be positively determined and, when found, that they should be intelligently corrected by glasses. These should be worn constantly for a length of time sufficient to determine if they modify any apparent muscular anomalies in the organ. It often takes considerable time to determine if the full correction of refractive errors by proper glasses is not all that may be required to effect a cure. A tenotomy on an eye muscle should never be suggested nor performed too hastily. It is important not to be misled into accepting the records of the first tests made on any patient's eye muscles as a basis for final conclusions or for positive advice.

17. **Anesthesia.**—Pedersen discusses general anesthesia with regard to the qualities of the substances used to produce the anesthesia and the best method of anesthetizing various types of cases.

18. **Cryoscopy of Cerebrospinal Fluid in Epidemic Meningitis.**—Bailey made a cryoscopic examination of 69 specimens of cerebrospinal fluid obtained from a lesser number of cases of epidemic cerebrospinal meningitis, some of the cases being examined several times at varying intervals. For the sake of convenience, Bailey made use of the following symbols: T. the total freezing point of the cerebrospinal fluid; S, that part of the total freezing point due to the contained sodium chlorid; R, that part of T due to the remaining solid components of the fluid. His findings are as follows: Upper limit of T, —.815; lower limit, —.50; a variation of —.315. The vast majority of cases, 79 per cent., ranged from —.52 to —.64, a variation of only —.12. Average T was —.575, very close to the normal freezing point of blood. T is not of any prognostic significance; some of the patients who recovered showed a high T, others a low T, while the same is true of several cases that terminated fatally. The limits of S were —.352 and —.486, a variation of —.134. Most of the cases, 74 per cent., ranged from —.40 to —.45, a difference of only —.05. Average S was —.422. The limits of R were —.062 and —.338, a variation of —.276. Most of the cases, 72 per cent., ranged from —.090 to —.180, a difference of —.09. Average R is —.152. The limits of the sodium chlorid content were .55 per cent. and —76 per cent. Most of the cases, 71 per cent., ranged from .60 to .68 per cent., a difference of .08 per cent., or, reduced to terms of the freezing point, a *difference corresponding* to —.05. The average sodium chlorid content was .66 per cent.

19. **Foreign Body in Bronchus.**—Under primary chloroform anesthesia, Yankauer removed an orange pit from the right bronchus of a 10-months-old child. He made an inferior tracheotomy incision and used a bronchoscope having an external diameter of 7 mm. The patient made an uneventful recovery.

20. **Sarcoma of the Bowel.**—Boucher's patient, a woman, aged 38, complained of considerable pain in the abdomen, particularly in the right inguinal region. Examination revealed a mass four or five inches long in the right inguinal region, about one inch to the outer side of the appendix line and attached to the crest of the ileum. The diagnosis of a probable malignant growth was made and operation was resorted to. The tumor involved the cecum and several inches of the ascending colon. The glands in the neighborhood were enlarged, some being as large as an ordinary marble. Six inches of the small intestine, all of the ascending and about one-half of the transverse colon were clamped off and removed, including every gland that could be found. The end of the transverse colon was turned in, by a double Lembert suture of silk, and an anastomosis was made between the cut end of the small intestine and the side of the middle portion of the transverse colon, for which silk sutures were used. The abdomen was closed without drainage. Microscopic examination of the specimen showed it to be a spindle-cell sarcoma. Recovery was uninterrupted, and there is no recurrence one year after the operation.

New York Medical Journal.

February 11.

21 Diagnosis of Tumors of the Cerebellum and the Cerebello-pontile Angle, Especially with Reference to Their Surgical Removal. Charles K. Mills, Philadelphia.
22 The Cerebellar Seizure (Cerebellar Fits) a Syndrome Characteristic of Cerebellar Tumors. Charles L. Dana, New York City.
23 Surgical Aspects of Tumors of the Cerebellum. Charles H. Frazier, Philadelphia.
24 Pathology of Cerebellar Tumors. (To be concluded.) T. H. Weisenburg, Philadelphia.
25 Diagnosis of Cerebellar Tumors. Joseph Fraenkel, New York City.
26 Ocular Symptoms of Cerebellar Tumor. G. E. de Schweinitz, Philadelphia.
27 Functions of the Cerebellum. Edward Lodholz, Philadelphia.
28 Case of Cyst of the Cerebellum. John M. Swan, Philadelphia.

St. Louis Medical Review.

February 4.

29 Diagnosis of Jaundice in Infancy and Childhood. W. L. Johnson, St. Louis.
30 Symptomatology of Acute Gastroduodenitis. Geo. M. Tuttle, St. Louis.
31 Recent Experiences with Catarrhal Jaundice. H. N. Chapman, St. Louis.
32 Etiology of Gastroduodenitis in Children with Special Reference to the Recent Epidemic. John Zahrosky, St. Louis.
33 Hydatid Cysts of the Liver. (Concluded.) Neill MacPhatter, New York City.

Lancet-Clinic, Cincinnati.

February.

34 How Sanitation May Be Made Effective. H. G. Graham, Chicago.
35 Diagnosis of Ectopic Gestation. M. A. Tate, Cincinnati.
36 Fracture of the Base of the Skull in a Pregnant Woman, with Recovery and Without the Occurrence of Abortion. M. Dreyfoos, Cincinnati.
37 Distoma Hematobium. A. Faller, Cincinnati.
38 Physiology. C. M. Wright, Cincinnati.

American Journal of Obstetrics, New York.

February.

39 Pathologic Anatomy and Pathogenesis of the Toxemia of Pregnancy. James Ewing, New York City.
40 *Eclampsia, with Report of Cases. L. M. Allen.
41 Treatment of Obstetric Hemorrhages. George L. Brodhead, New York.
42 Pyelitis Complicating Pregnancy. Alfred Baker Spalding, San Francisco.
43 Typical Case of Tubercular Peritonitis. W. P. Manton, Detroit.
44 Three Specimens of Exencephalia. Henry F. Lewis, Chicago.
45 *Some Conclusions After Operating for Two Years on the Pelvic Diseases of Insane Women. LeRoy Broun, New York.
46 Pelvic Inflammation. A Discussion on One of the Moot Questions Relating Thereto. L. H. Dunning, Indianapolis.
47 *Fibroid Tumors and Pregnancy. S. Marx.
48 *New Operation for Cystocele. James C. Wood, Cleveland.

40. **Eclampsia.**—Allen presents a statistical study of 33 cases of eclampsia (active) and 10 cases of severe toxemia of pregnancy, occurring in 3,400 confinements. He concludes that eclampsia is due to a toxin, which very probably has its origin in the liver, and comes from the mother rather than from the fetus. Premonitory symptoms are always present, the most constant and important of these being frontal headache. The diagnosis of toxemia of pregnancy should be made early, and if the patient is under observation this can generally be done. The premonitory symptoms should be treated until in spite of the treatment they get worse; then empty the uterus, as in some cases this is the only method of stopping the progress of the disease. Deliver as quickly as possible, consistent with cleanliness and preservation of soft parts, bleed, removing from 300 to 700 c.c., as

the case may indicate; infuse from 500 to 1,000 c.c. of salt solution, depending on the amount of blood withdrawn and the character of the pulse; this may be repeated later; morphia ¼ grain, hypodermically, to relax the muscular system; croton oil, 1 to 2 drops in 1 to 2 drams of olive oil, followed by magnesium sulphate, ½ ounce, in saturated solution, until effectual as a purgative. Other conditions are treated symptomatically. The diet should be liquid, largely milk.

45. **Gynecologic Operations on the Insane.**—Reviewing the histories of the insane patients operated on within the last two years, Brown finds that among those in whom pathologic pelvic conditions existed which were remedied within six months after the commencement of their mental disturbance, improvement in the mental condition was noted in 65 per cent. Under the same conditions, but when the operations were done after one year of mental disturbance, there was an improvement in only 27 per cent. of the patients.

47. **Fibroids and Pregnancy.**—Marx says that every fibroid recurring during the child-bearing period, with few exceptions, should be attacked by surgical means. If occurring during pregnancy, safe fibroids, that is, those beyond the dilating zone of the uterus, should be carefully watched. Every complication during pregnancy depending on the fibroid should warrant our attacking the condition surgically, or at least provoke the indication for emptying the uterus. During labor, safe tumors need watching. The resultant complications must be met energetically, but gently, as they arise. Tumors which can not be displaced blocking the bony passage, warrant vaginal enucleation or cesarean section followed by hysterectomy. Sloughing and necrosis of a puerperal fibroid must not be mistaken for retained secundines. This doubt must be eliminated by exploration with the clean, aseptic hand. Retained secundines are always to be removed manually, and under no condition must the curette be employed, because of the danger of laceration of the capsule and consequent sepsis. Sloughing and necrotic fibroids should always be removed either by enucleation or by hysterectomy.

48. **New Operation for Cystocele and Perineorrhaphy.**—Wood describes his operation as follows: The ordinary circular denudation is made, which should correspond in size to the size and degree of prolapse of the cystocele. While in conformation it should be oval, ordinarily it should be wider above than below, because in nearly all instances there is a greater degree of relaxation in the upper part of the vagina than in the lower. After the denudation is made, the mucous membrane is dissected from the bladder to the extent of three-eighths of an inch entirely around the denuded area. The dissection can be made either with a scalpel or with scissors. Mattress sutures are now passed in such a way that when tied they will make a bridge of tissue three-eighths of an inch in depth, and which is composed of the dissected mucous membrane lifted from the bladder. The edges of this column of tissue are brought together with a running catgut suture. If there is a urethrocele, or if there is incontinence of urine because of weakness at the internal meatus, the dissection is extended along the urethra for a sufficient distance to support the neck, as well as the base, of the bladder. When the uterus is entirely without the vagina, it is absolutely imperative to narrow the vaginal wall; this to be supplemented by the necessary cervical work and reparation of the pelvic floor. In order to overcome relaxation of the pelvic floor, Wood has modified the ordinary flap-slitting operation as follows: A semicircular incision is made with elbowed scissors, the incision extending through the several layers of fascia. The flaps are caught in forceps, one above and one below, and the dissection is completed with the finger well into the crest of the rectocele. If now a suture is passed, beginning at the crest of the rectocele, first through the vaginal flap and buried in the tissues from left to right, being brought out and reintroduced as often as may be necessary to complete the circumference of the wound, and finally brought out at the point of entrance, when tied it will necessarily bring the divided levator ani fibers together in the median line. From one to three vaginal sutures thus introduced will convert the vagina into a mere slit in the pelvic floor. The last suture is introduced within three-fourths of an inch from the vaginal orifice. The vaginal flap should be kept tense while these sutures are being passed, so that the posterior vaginal wall will be perfectly smooth when the operation is completed. The superfluous tissue is removed from the upper and lower angles of the wound. By doing this, all scar tissue is done away with, and the perineum is left smooth, with its surface slightly depressed. The wound may be closed from the perineal aspect as the operator elects. Wood uses interrupted catgut sutures, which, he believes, approximate the fascia and muscles better than does the buried suture. If care is taken not to tie the external sutures too tightly, there is but little pain and no sloughing.

Annals of Surgery, Philadelphia.

February.

49 *Acid Intoxication; Its Significance in Surgical Conditions. James A. Kelly, New York City.
50 *Gall-bladder and Biliary-duct Surgery. D. A. K. Steele, Chicago.
51 Volvulus of the Jejunum. Charles L. Scudder, Boston.
52 *Operations on the Lower Ends of the Ureters by the Inguinal Extraperitoneal Route Under Local Anesthesia (Cocain). John A. Sampson, Baltimore.
53 Primary Urethral Calculus. With Report of a Case. Herman E. Wolf, Chicago.
54 *Case of Bone Transference. Use of a Segment of Fibula to Supply a Defect in the Tibia. Thomas W. Huntington, San Francisco.
55 Contrecoup Fracture of the Sternum. George De Tarnowsky, Chicago.
56 Fracture of the Carpal Scaphoid, with Habitual Dislocation of the Central Fragment. Raymond Russ, San Francisco.
57 *Interscapulothoracic Amputation. Report of Operation for Sarcoma of the Humerus. Farrar Cobb, Boston.
58 Symmetrial Inflamamtion of the Epiphyseal Beak of the Tibia. Kenelm Winslow, Seattle.

49. **Acid Intoxication.**—Kelly's report is based on the observation of about 400 surgical cases. The urine of each of these cases was examined immediately on entrance to the hospital, again within from 12 to 48 hours after the administration of a general anesthetic, again if at any subsequent time clinical signs suggested this condition, or if the urine showed the presence of acetone or diacetic acid; and, finally, the urine was examined in most cases every other day until the clinical symptoms had ceased and until it no longer contained a pathologic amount of acetone or diacetic acid. Of the 400 cases observed symptoms of acid intoxication were present in 46. The test used for determining the presence of acetone is as follows: To 5 c.c. of urine add a crystal of sodium nitroprussiate and sufficient sodium hydrate to render the solution strongly alkaline. This is thoroughly shaken up in a test tube. On the addition of glacial acetic acid, the presence of acetone is shown by the occurrence of a purple color to the foam. The presence of diacetic acid is shown by a Burgundy red color appearing on the addition of a strongly aqueous solution of a ferric chlorid to the urine. Of the 46 cases, acetone and diacetic acid, separately or combined, were found in the following conditions: 11 cases of appendicitis, 14 of contusions and fractures, 2 of gastric disease, 2 of carcinoma, 3 of severe lacerated contused wounds, 2 of localized septic processes, 2 of cerebral concussion, 1 each of salpingitis, acute multiple suppurative osteomyelitis, floating kidney, fecal fistula and enterocolitis, epilepsy, tuberculous cervical noditis, burns and typhoid fever, diabetic gangrene, hemorrhoids, and alcoholism. In 17 cases symptoms were present on entrance; in 12 cases within from 24 to 48 hours after the administration of a general anesthetic (ether being used in 10 cases and nitrous oxid in 2 cases); in 17 cases symptoms developed later without any anesthetic being administered and for which no cause could be assigned. Acetone and diacetic acid were present in the urine at the same time in 24 cases: acetone alone was present in 20 cases: diacetic acid alone in 2 cases; acetone, diacetic acid and sugar were present together in 3 cases: acetone and sugar in one case. In these 46 cases

there were 6 deaths. In those cases where the onset could be carefully noted, the first symptom to attract attention was a peculiar apathy. This was accompanied by a peculiar, pungent, fleeting odor to the breath, a distaste for food, slight increase of body temperature, and, in most cases, vomiting, occurring without apparent cause, following immediately on taking anything into the stomach. In the mild cases the vomitus was colorless, copious and watery in character, having a foul acid odor and containing particles of semi-digested food. In the severe cases it was dark, bile-stained, of a coffee-ground appearance, and continued so until death. In the severe cases, bicarbonate of soda was given by mouth; if retained, by enemata, subcutaneously and intravenously; but usually without avail. The best results were obtained by the use of adrenalin chlorid, given subcutaneously (in children about 200 c.c. of a 1 to 50,000 solution; in adults, 500 c.c. of the same solution) every 8 to 12 hours. To relieve thirst, enemata of salt solution were given every six hours, alternating with nutrient enemata. Kelly says that it has been proved experimentally that this condition is not due to acetone circulating in the blood and that the amount of acetone found in the urine is no index of the severity of the affection. That there is some toxemia occurring is doubtless true, but whether it is due to the presence of volatile fatty acids, with a rapid destruction of proteid matter, or to the rapid elimination of the alkalies, is impossible to say at the present time.

50. **Gall-Bladder and Biliary-Duct Surgery.**—Steele cites 7 cases to illustrate the dangers of delay and the complications that arise from postponing a necessary surgical operation to a time when it is done as a last resort.

52. **Operations on Lower Ends of Ureters.**—Sampson advocates local anesthesia in operations on the ureters. In 4 operations on the lower ends of the ureters by the inguinal extraperitoneal route under local anesthesia (three ureterovesical implantations and one case of ureteral calculus), lasting from 4 hours and 30 minutes to 6 hours and 10 minutes, the only apparent effect of the operation, aside from postural discomfort, and, at times, some pain (endurable), was that of fatigue, as of a similar length of time spent in a dentist's chair. Sampson declares that the success of these operations is dependent on a knowledge of what does and what does not hurt, and on proceeding slowly and carefully, remembering that anything causing traction on the parietal peritoneum is painful. Pinching, cutting, and suturing the ureter apparently did not cause any pain, and similar treatment of the bladder in one case was painless, but painful in another, a case of chronic cystitis. Closing the abdominal incision was the most painful step in all the operations. The extraperitoneal route is less painful than the intraperitoneal and the danger from infection is less; by draining freely, the retroperitoneal tissue is well protected and the intestines are kept back by the peritoneum, thus giving a good exposure. There is less shock associated with the extraperitoneal than with the intraperitoneal operation. The intramuscular incision through the abdominal wall is recommended; it does less harm, renders the liability of postoperative hernia small, and affords a good exposure. Two incisions are very good; first, a "gridiron" incision, lateral to the rectus, similar to the well-known McBurney incision, only a little lower; and, second, a longitudinal incision through the rectus muscle. Through either incision the ureter can usually be exposed from the pelvic brim to the bladder, and if more room is desired the muscles may be cut at any time.

54. **Bone Transference.**—Huntington cites the case of an acute infectious osteomyelitis of the tibia in a boy, aged 7, which illustrates the possibility of supplying a tibial defect amounting to absence of nearly the entire diaphysis by the appropriation of a corresponding portion of the fibula.

57. **Interscapulothoracic Amputation.**—Cobb's case of sarcoma of the humerus is interesting because of the great rapidity of the growth, the associated pain, the complete absence of surgical shock, and the successful immediate result and the disappointing ultimate result. The arm, with the scapula and the outer two-thirds of the clavicle, was removed under ether anesthesia. Shock was prevented entirely by controlling the hemorrhage so that practically no blood was lost, and by adopting the method of Crile and Cushing of injecting a weak solution of cocain into the large nerve trunks of the brachial plexus before dividing it. The inner third of the clavicle was left because there was no apparent reason for disarticulation at the sternal joint. The subclavian artery was ligated and divided between the ligatures; the arm was then elevated to empty it of blood, and then the vein was tied and divided, thus avoiding any hemorrhage. All other blood vessels were clamped and ligated. The skin flaps were sewed with interrupted silkworm gut stitches, and a small rubber tissue drain was placed in the lowest angle of the incision. The duration of the operation was 1 hour and 15 minutes. The patient made a complete recovery, and on the fifth day was up, walking about the ward. The rubber tissue drain was removed in 48 hours. Eight months later the patient returned, suffering from pleurisy with bloody fluid, beyond a doubt of malignant origin. He died nine months after the operation from recurrence of the pleurisy and suspicious cerebral symptoms.

Illinois Medical Journal, Springfield.

January.

59 *Modification of the Porro Operation. Carl Wagner, Chicago.
60 *Duty of the Medical Profession in Relation to Criminal Abortion. C. S. Bacon, Chicago.
61 **The Moral and Religious Objections to Inducing Abortion.* Peter J. O'Callaghan.
62 *Therapeutics and Criminal Abortion. Charles B. Reed.
63 Criminal Abortion; Brief Consideration of Its Relation to Newspaper Advertising. Report of a Medicolegal Case. Rudolph W. Holmes.
64 *Criminal Abortion as It Comes Before the Coroner's Office. John E. Traeger, Chicago.
65 **The Common and Statute Law of Illinois.* J. M. Sheean, Chicago.
66 Surgical Treatment of Idiopathic Pruritus Vulvæ. M. R. Barker, Chicago.
67 *The Present Status of the General Practitioner.* T. N. Rafferty, Robinson, Ill.
68 *Appendicitis from the Standpoint of the General Practitioner.* H. N. Rafferty, Robinson, Ill.
69 *The Present Epidemic of Smallpox in Terre Haute.* M. R. Combs. Terre Haute, Ind.
Philadelphia.
70 Preventive Medicine. C. Barlow, Robinson.
71 Attention to Details. C. E. Price, Eaton.
72 Neurasthenia. H. I. McNiell, Newman, Ill.
73 Milk Sickness. J. W. Alexander.
74 Plea for More Careful Study of the Kidney. James Miles, Merom, Ind.
75 E Rebus et Rationae Medinae Usus. Joe. H. Weinstein, Terre Haute, Ind.

59. **Modification of Porro Operation.**—Wagner's modification means the reversal of the two steps of the original Porro operation, and consists in the reduction of the cesarean section and the supracervical amputation into one operation of amputation of the intact pregnant organ with everything left in situ as far as the mother is concerned. The amputation is the only operation done on the mother. The delivery of the uterus is an act of its own, done at another table by other hands, and thus not interfering with the operation done on the mother nor consuming extra time on the patient under anesthesia. Another feature of his modification relates to the technic. Instead of placing a rubber tube constrictor around the supracervical segment of the uterus, and tying the uterine arteries before the amputation takes place, the cervical segment is grasped from behind with the left hand and firmly compressed, the segment itself being elongated and made thinner through lifting up and traction of the uterus by an assistant. In this manner the cervical segment is constricted and hemorrhage is controlled absolutely. The slipping of the stump out of the grasp of the hand is guarded against by four forceps inserted into the wall of the uterus at four different diagonal and rectangular points above the constricting pad. The technic of the amputation is as follows: An opening is made in a transverse direction right above one of the forceps. Two fingers of the assistant are introduced into this opening from above downward and inward, the palmar aspect of the hand being

in contact with the uterus in such a way as to enable the assistant to hold backward and upward the contents of the uterus, in order to prevent them from prolapsing or from being injured during the following steps of the operation. The amputation is completed with quick, heavy strokes of the curved scissors held at such an angle as to form a conical shape of the stump. The absolutely dry stump, still in the firm grasp of the hand, is rapidly sewed up, the first running sutures comprising the uterine arteries, the lumen of which can be seen very readily. By not ligating these arteries any sooner, the circulation and nutrition of the child are maintained as long as possible. The uterus is then quickly removed and delivered. The time consumed from the moment the circulation is interrupted until the delivery amounts to something over two minutes.

60. See abstract in The Journal, vol. xlii, p. 1889.

61. 62 and 64. Ibid, p. 1890.

65. Ibid, p. 1891.

Journal of Cutaneous Diseases, New York.

February.

76 *Melanoma. (Concluded.) J. C. Johnson, New York City.

76. **Melanoma.**—Johnson finds that the commonest, and therefore most important, melanoma is that derived from soft nevi which are endotheliomata of lymph vessel origin, and that nevi melanoma whose histogenesis can not be determined must be referred to the same origin. A second variety exists with the same histologic pictures which does not spring from nevi and whose origin is directly traceable to endothelium, probably also lymphatic. This group includes melanotic whitlow and the malignant lentigo of the French. A third division is truly epithelial in origin, although its existence has been denied. These tumors are of various types and show only a very slight local tendency to malignancy, a fact sufficient in itself to determine a cardinal difference from the melano-entheliomata, whose capacity in this connection can hardly be exaggerated. A histologic diagnosis is the only proper method of differentiation between the two. So far as treatment is concerned, Johnson states that there is hope in surgical interference if it is early and radical, even when dissemination has already occurred locally. The wounds should not be allowed to granulate, not only because granulation tissue offers so slight a bar to tumor growth, but because there is no means of knowing that its endothelium may not join in the neoplasia. Cases of nonrecurrence after operation are reported, the oldest being a case of ligation of a mole on the neck with tumor infiltration of the intermuscular septa in every direction; the patient is entirely well, five years after operation.

American Journal of the Medical Sciences, Philadelphia.

February.

77 *Copious Water Drinking and Polyuria in Typhoid Fever. Edward F. Cushing and T. W. Clarke, Cleveland.
78 *Chlorid and Water Excretion in Typhoid Fever, with Copious Diuresis. Torald Sollmann and J. A. Hofmann, Cleveland.
79 Studies on the Basophilic Granulations of the Erythrocyte in Lead Poisoning and Other Conditions. W. B. Cadwalader, Philadelphia.
80 Toxemia of Pregnancy. Edward P. Davis, Philadelphia.
81 *Hemorrhages in Eclampsia. R. W. Lobenstine, New York City.
82 Myxedema Associated with Tuberculosis of the Adrenals. J. R. Hunt, New York City.
83 Case of Multiple Cerebrospinal Sclerosis. F. E. Dercum and Alfred Gordon, Philadelphia.
84 Case of Infective, Lateral, Sigmoid, Superior Petrossal Sinus and Jugular Thrombosis. J. D. Richards, New York City.
85 Posterior-Basic Meningitis. H. Koplik, New York City.
86 Use of the Roentgen Rays in the Studies of Normal and Pathologic Anatomy of the Internal Structures of the Face. M. H. Cryer. Philadelphia.
87 Development of the Accessory Sinuses of the Nose. L. A. Coffin, New York.
88 Case of [illegible]s. W. C. Posey, Philadelphia.
89 Study of [illegible] Color Images. C. A. Oliver,
90 Case of [illegible] with Unusual Changes in the Visual Fields. C. A. Veasey, Philadelphia.
91 Typhoidal Insanity in Childhood. D. L. Edsall, Philadelphia.

77. **Water Drinking and Polyuria in Typhoid.**—Cushing and Clarke report on the results they obtained in prescribing large quantities of water to typhoid patients. It was soon found that without discomfort or special reluctance on the part of most patients, the unexpected and unusual amounts of from a gallon to a gallon and a half or even more could be taken in 24 hours, providing the water was administered in small quantities, four ounces, at definite and frequent intervals, every fifteen minutes during the waking hours. In addition to this, the ordinary patient received, every two hours during the day and once or twice at night, alternately, six ounces of milk and six ounces of albumin water. The resulting diuresis was marked, the degree of polyuric, day by day, closely corresponding to the quantity of fluid ingested. Furthermore, the total nursing care of these patients was less than of those not so treated, and their general comfort seemed apparent. Headaches were not so troublesome; tongues and mouths kept noticeably clean and moist; apathy, deafness, restlessness, nocturnal delirium and other nervous and toxemic symptoms seemed less in evidence; hypnotics were not so often needed; nausea was unusual, and remission from temperature appeared more frequent. Complications were few, and there were no deaths among 56 cases so treated, although the prevailing epidemic was of severe type and the general mortality, on the whole, was large.

78. **Chlorid and Water Excretion in Typhoid.**—Sollmann and Hofmann investigated the urine secretion in typhoid as influenced by unusually large diuresis, the consequence of a very free administration of water. They found that the free administration of water to typhoid patients causes a large polyuria. The percentage of chlorids and the total molecular concentration are much below normal, while the daily excretion of total dissolved molecules exceeds that of ordinary typhoid cases. Therefore, the eliminating capacity of the kidneys is not injured by typhoid fever nor by a prolonged diuresis. No accumulation of fluid appears to occur in the body, the excretion being very nearly parallel to the income. The quantity of urine is influenced by the perspiration and to a lesser extent by catharsis. It appears probable that the perspiration is freer under the influence of the large administration of fluid. Diuretics do not increase the polyuria nor does the administration of calcium chlorid appear to diminish diuresis. The effect of the polyuria on the chlorid excretion, as compared with ordinary typhoid cases, consists in a diminution of the percentage and an increase of the amount excreted daily. Minor variations in diuresis affect the percentage, but not the daily output. The chlorid excretion varies strictly with the chlorid income. The excretion of water and chlorids appears to obey the same laws as in health. There is, however, a greater tendency to chlorid retention in the fever. The difference appears to be only quantitative and not qualitative. It is greatly diminished by polyuria. The prolonged restriction of the chlorid income appears to produce no deleterious effects, and the patients do not develop any "salt hunger."

81. **Hemorrhages in Eclampsia.**—Lobenstine analyzed the reports of 6 cases of eclampsia with hemorrhagic manifestations and found that the following group of symptoms was quite characteristic of that type of eclampsia: 1. Profound toxicity. 2. Constant and marked jaundice. 3. Prominent, early and distressing abdominal distention—a bad sign in all these cases. 4. Vomiting of clear fluid or curdled milk; then of bile, and finally of coffee-ground material or of clear blood. 5. Pain and tenderness over the liver. 6. Hemorrhagic manifestations other than the vomiting of blood. The prognosis of this affection is bad; mortality, 70 per cent.

Maryland Medical Journal, Baltimore.

February.

92 Dysentery, with Special Reference to Its Bacillary Form. Joseph J. Kinyoun, Glendolen, Pa.
93 Pathology of Epilepsy. Wm. Rush Dunton, Jr., Townson, Md.

Canada Lancet, Toronto.

January.

94 Intra-abdominal Anastomosis. A. Groves, Fergus, Ont.
95 Operative Treatment of Spina Bifida. E. R. Secord, Brantford, Ont.
96 The Decline of Atropin. G. Sterling Ryerson.
97 Patent Medicines. C. J. Fagan, Victoria.
98 Supposed Case of Glanders in the Human Subject. James H. Richardson.

Woman's Medical Journal, Toledo.

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the *plasmodiophora brassicæ* may be observed lying between the epithelial cells, among the connective tissues in the glandular spaces of adenomata, and occasionally within the nucleus or protoplasm of the epithelial cells. All the various phases in the developmental cycle of a plasmodiophora were observed by the authors and they succeeded in growing the organism from carcinomatous tumors. The technic of obtaining these cultures, as well as the morphology of the organism, are described in detail and, therefore, can be obtained from the original article. The authors have traced what they consider to be three parallel lines—namely, those of (1) the life-cycle of the *plasmodiophora brassicæ*, (2) a series of bodies found especially within the cells of carcinomatous tumors, and (3) the stages of an organism which can be grown from such tumors.

12. **Atmospheric Conditions and Cerebral Hemorrhage.**—A careful study of 66 fatal cases and 62 non-fatal cases of cerebral hemorrhage appears to have convinced Russell that there is a slight tendency toward the occurrence of cerebral hemorrhage on days of high atmospheric pressure and also on days of rising pressure, the former being probably the important factor. There is a very marked tendency on days of low-wind pressure, and the combination of a low-wind pressure with a high barometric pressure is the condition under which the largest number of hemorrhages took place. Apart from season, temperature in itself did not appear to exert any influence, though a small excess in the number of cases was noted on days with a rising thermometer and also with a combined rise of atmospheric pressure and temperature.

Practitioner, London.

January.

16 Treatment of Movable Kidney. Frederick Treves.
17 *Zomotherapy in Pulmonary Tuberculosis. R. W. Philip.
18 *Diet in Pulmonary Tuberculosis. F. W Burton Fanning.
19 Principles of the Dietetic Treatment of Tuberculosis. Arthur Latham.
20 *Parasites of Smallpox, Vaccinia and Varicella. W. E. de Korté.
21 Gastroenterostomy. Donald Armour.
22 Anesthesia in Operations on the Upper Air Passages. From the Operator's Point of View. St. Clair Thomson. From the Anesthetists Point of View. D. W. Buxton.
23 Some Points in the Surgical Treatment of Intestinal Obstruction. T. Carwardine.
24 Famous Hospitals and Medical Schools—St. Bartholomew's Hospital.

17. **Zomotherapy in Pulmonary Tuberculosis.**—For fifteen years Philip has been an ardent advocate of the systematic, continued administration of raw meat in the treatment of pulmonary tuberculosis. The form and dosage must be regulated in the way in which we regulate the administration of any drug. The method is applicable not only to tuberculosis but to a variety of wasting conditions, in gastrointestinal disturbances and generally in cases where for some reason the nitrogen output is, or has been, unduly increased, or where the nitrogen intake on ordinary diet is insufficient for the needs of the patient. The raw meat is administered as follows: 1. Finely minced or bruised beef slightly seasoned with salt, etc., according to taste, served cold or gently warmed throughout, one-half pound two or three times daily. The meat must be perfectly fresh. 2. Beef-juice prepared as follows: Extract one-half pound of meat in one-half pint of cold water plus one-half teaspoonful of salt, slowly heat to 100 F. Express the liquid through a cloth and serve. Or the juice may be expressed from the meat directly without the addition of water. In either case the meat-juice must be freshly prepared for use. 3. Raw meat soup, prepared as follows: Mix one-half pound of finely minced fresh meat with sufficient milk to produce a thick, uniform paste. Immediately before serving add one-half pint of milk at 150 F. In place of milk, the soup may be made in similar fashion with stock of beef or chicken or veal. Though not in the same dietary category, Philip also includes quite fresh raw eggs, one, two or three before meals, to be swallowed like oysters. He has not found it difficult to accustom the patient to the use and even to the enjoyment of these raw products. The method is most serviceable, he says, in the early stages of the disease, although equally good results have been obtained in very advanced cases. The patient's general condition, appearance, weight and muscularity improves rapidly. The effect on the circulation is striking, the pulse rate becomes less and the blood pressure improves. In some instances a highly irregular temperature gives place within a week or two to an almost uniform range about the normal level. The functions of stomach and bowel are rendered easier and more effective. The blood presents a rapid increase in hemoglobin, 10 or 20 per cent. in a few days, falling comparatively quickly if return be made to cooked meat. Within the chest, physical signs indicating present activity and disintegrative changes are gradually replaced by signs of quiescence and cicatrization. Tubercle bacilli gradually lessen in the expectoration and other discharges and assume a degenerate aspect. The only disadvantages urged against this form of treatment are (1) the natural distaste which many persons have to such raw products, and (2) the possibility of the introduction of intestinal parasites. The latter danger is not a likely one if reasonable care be taken in the selection of meat. Even if a parasite be so introduced, the harm to the patient is infinitesimal compared with the risk involved by the presence of the disease. The repugnance of the patient to this food speedily yields as soon as he is made to appreciate the fact that zomotherapy constitutes a definite and special treatment of his disease. Philip describes the results obtained to the fact that muscular tissue is that on which the tubercle bacillus seems to find greatest difficulty of implantation and development.

18. **Diet in Pulmonary Tuberculosis.**—Burton-Fanning says that the best results in the treatment of pulmonary tuberculosis are obtained by the administration of moderate amounts of food. Our object should be to secure over-assimilation rather than over-ingestion. The dietary recommended is characterized chiefly by the large amount of fat it contains. Experiments have shown that fats are peculiarly well absorbed by consumptives. The most suitable diet consists of about 120 grams of proteids, 140 grams of fats and 300 grams of carbohydrates. In the dietary for one day, meat is given in very small amounts (4 to 5 ounces) and only in the cooked form. Milk forms the principal part of the dietary. So obvious are the advantages which attend its use in consumption that we can hardly afford to omit it from the dietary.

20. **Parasites of Smallpox, Vaccinia and Varicella.**—By submitting the vesicular contents from the pox of smallpox, vaccinia and varicella to a microscopic examination as hanging-drop preparations, without any other manipulation whatsoever, de Korté found large numbers of unicellular elements, which on a warm stage showed ameboid movements. The organism is a spherical body measuring about five microns and containing a largely centrally situated nucleus, which is usually hidden by small, very refractive granules. The cytoplasm of the cell is firmly granular and often presents a reticulated appearance. In order to see these parasites, the lymph must be examined on the fifth day of the eruption or earlier. The parasite of varicella is found on the first, second and third days of the eruption. Human vaccine lymph must be gathered on the eighth or ninth day, for the parasites disappear spontaneously on the tenth day. In favor of these elements being protozoan is the fact that they could be grown in pure culture on a suitable medium. De Korté promises to add to this preliminary note later.

Semaine Médicale, Paris.

25 (XXV, No. 3, January 18.) *L'intervention chirurgicale dans le rhumatisme déformant. F. Lejars (Paris).
26 (No. 4.) *La maladie de Mikulicz. L. Chelnisse (Paris).
27 L'uréthrite staphylococcique par coit "ab ore."
28 (No. 5.) *Des amusies (amusia). G. Marinesco.
29 Le Phlegmon ligneux (woody). F. Lejars.

25. **Surgical Treatment of Arthritis Deformans.**—Operative treatment is not the routine technic for these cases, of course, but Lejars relates a number of cases from his own experience and that of others which demonstrate the incalculable benefit

Woman's Medical Journal, Toledo.

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25. She returned a year later for an additional injection, as the paraffin had sunk in at one place. He injected at two points, on each side, about 1.5 cm. from the tip of the nose, about .33 gm. paraffin at 43 degrees. Three minutes later she complained of pain in the left eye, and in twenty minutes there was complete amaurosis in this eye. The course of the case suggests that thrombosis had occurred in an external nasal vein and had spread to the inferior ophthalmic. As the thrombosis extended toward the optic foramen, the blood in the central retinal vein clotted, with blindness as the result. In two months atrophy of the optic nerve was apparent. Mintz states that since then he always warns his patients of the possibility of this complication, but some insist on the injections notwithstanding his warnings.

38. **Simplified Technic of Gastrostomy.**—Arce has applied in 5 cases a mode of gastrostomy or jejunostomy which has given such satisfactory results that he thinks it deserves a place beside the more complicated procedures of the kind. The essential feature is the suturing of the seromuscular coat of the intestine or stomach to the peritoneum by button or U sutures over an area not larger than a square centimeter. The rest of the peritoneum and mesocolon is then sutured, leaving the stomach or intestine exposed only enough to insert a No. 18 Nélaton catheter. The skin is then sutured. The opening can then be made into the stomach or intestine or it can be delayed for twelve hours to permit adhesions to form. The feeding sound is inserted slanting, and is withdrawn slowly. It is better to give nourishment in small amounts and frequently, not more than from 200 to 300 cm. at a time. The autopsy of one of his cases showed that the fistula 2 cm. long, through the abdominal wall, terminated in the stomach in a minute side opening. The fluids in the stomach flow downward and do not make their way through this small opening.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 428.

40 (XXIX, No. 1.) Ist die Symphysiotomie eine chirurgisch in korrekte Operation? P. Zweifel.
41 Zur Frage der Eiimplantation auf dem inneren Muttermunde (implantation of ovum on internal os). E. Bumm.
42 *Kongenitale Lage- und Bildungs-Anomalie der linken Niere (of left kidney). O. Orth.
43 *Zur Berechnung des "absoluten Heilungs Prozentes" in der Statistik des Uterus Karzinoms. J. Werner.
44 (No. 2.) Fall von primärem Sarkom des Beckenbindegewebes (pelvic connective tissue). D. Pulvermacher.
45 Der suboccipito-frontale Kopfumfang (circumference). J. Kocks.
46 Stypticin bei Gebärmutterblutungen. M. Freund.
47 Ueber Anämisierung und Lokal-Anästhesie. B. Müller.
48 (No. 3.) Paralyse des nicht schwangeren Uterus (non-pregnant uterus). P. Strassman.
49 Ueber Embryotomie. L. Seeligmann.
50 Prolapse and Gangrene of Enlarged End of Ureter.—Vorfall und Gangrän des erweiterten Ureter-Endes. M. Simon.

42. **Congenital Deformity of Left Kidney.**—Orth thinks that the case he describes is of interest, as it shows that congenital malposition of the left kidney can be the cause of retroflexion of the uterus and may cause abortion. He states also that displaced kidney may simulate a pelvic tumor. In this case the patient had suffered almost constantly from sacral pains of varying intensity and a feeling of pressure in the region where the kidney was found. All symptoms vanished after removal of the kidney, which was much deformed and degenerated.

43. **Cancer Statistics.**—Werner urges that cancer statistics should list the number of patients, the proportion that were operated on, the number that died primarily, and the number permanently cured (after 5 years). He mentions other points which will aid in making statistics more easily compared.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

51 (XXX, No. 53, December 29.) Zur Pathologie und Anatomie der suprapapillären Duodenal-Stenose geschwüriger Grundlage (stenosis consecutive to ulceration). Wieting and Reschad Effendi (Constantinople).
Plantar-Neuralgie, Tarsalgie, Metatarsalgie, Talalgie, Hack-
52 *Prospects of Oxygen in Therapeusis.—Die Aussichten der Sauerstoff-Inhalationen nach den neuesten physiologischen Untersuchungen. E. Aron.
53 Ueber den Fussohlenschmerz und seine Behandlung. (Podalgie, enschmerz.) F. Franke (Braunschweig). (Commenced in No. 52.)
54 *Zur Technik der Radikal-Operation von Bauch-Narben und Nabel-Hernien (postoperative and umbilical hernias). Karewski.
55 Beitrag zu den lateralen Kiemenganggeschwülsten (tumors in branchial cleft). E. Pfister (Cairo).
56 Zur hysterischen Myopie der Schulkinder (of school children). Axmann (Erfurt).
57 (XXXI, No. 1.) Wearing Out of Nerves Without Due Repair.—Die Aufbrauchkrankheiten des Nervensystems. L. Edinger (Frankfort a. M.).
58 Ueber antibakteriolytische (antagonistische) Substanzen normaler Sera. R. Pfeiffer and E. Friedberger.
59 *Behandlung des Panaritium. Riedel (Jena).
60 erkungen zur Heisswasser-Alkoholdesin- (Tübingen).
61 * ler Heilquellen und Moorerden (radium in mineral waters and muds). E. H. Riesenfeld (Freiburg i. Br.).
62 Ueber Mastitis chronica scrofulosa bei Kindern. B. Müller.
63 Professional Matters.—Umschau. L. Henius (Berlin).
64 Die Gonorrhoe sonst und jetzt (then and now). E. Finger.
65 (No. 2.) *Indikationen und Methodik der Digitalistherapie. H. Eichhorst (Zurich).
66 Ueber die im Exodin (Schering) enthaltenen wirksamen ekkroprotischen Substanzen. W. Ebstein.
67 Behandlung der Netzhautablösung (detachment of retina). H. Sattler. (Commenced in No. 1.)
68 *Zur Kenntnis und Verwertung der Rolle des Lecithins bei der biologischen Wirkung der Radium- und Röntgen-Strahlen. R. Werner (Heidelberg).
69 *Ueber die Arten der nach Kopfverletzungen auftretenden Neurosen. Die traumatische Labyrinth-Neurose. Stenger.
70 Ueber Gonococcensepsis der Neonatorum. C. Brehmer.
71 Ueber die Beziehung der Rhinitis fibrinosa zur Diphtherie. L. Wolff.
72 *Fall von chronischer Phenacetin-Vergiftung (poisoning). M. Hirschfeld.
73 *Public Health Matters.—Gewerbehygienische Rundschau. E. Roth.

52. **Limits of Oxygen in Therapeutics.**—Aron doubts whether inhalation of oxygen does what we attribute to it. He thinks that in intoxication with carbonic acid gas the benefits supposed to be derived from inhalation of oxygen are illusory. He recently had occasion to observe a child with extreme cyanosis from a congenital pulmonary valve defect. Respiration was rapid and superficial. The child was given oxygen to inhale through a spirometer and the cyanosis vanished to a remarkable extent after a few deep inspirations. On suspension of the inhalation the cyanosis recurred as intensely as before. These facts would suggest that oxygen had a marked action in the case, but further tests, with ordinary air in place of the oxygen, produced exactly the same effect. The cyanosis vanished just as when the oxygen had been inhaled. The opinion is gaining ground that the blood can never be completely saturated with oxygen—the normal saturation in the arterial blood being 82 per cent. The only way to decide the question as to the efficiency of oxygen is to eliminate the changes in the mechanics of breathing. If a cyanotic or other suitable subject could be kept for a day or so in a pneumatic cabinet, supplied only with pure oxygen, then the question would be finally decided.

54. **Treatment of Postoperative and Umbilical Hernias.**—Karewski has operated on a number of patients with very extensive hernias, and the results by the technic he describes have been extremely satisfactory. He has had four years' experience with it. An incision is made entirely around the hernia, all in sound skin, and the cicatricial tissue is extirpated, sparing the peritoneum. He then incises the muscle and aponeurosis on the longitudinal axis of the hernia; this allows the hernia to be readily reduced and its opening sutured. The muscles are then utilized to make a strong cover over the site of the original incision, supplemented possibly by wire netting. In 2 of his 13 patients the hernia extended across the entire abdomen.

59. **Treatment of Panaritium.**—Riedel remarks in the course of this clinical lecture that nothing detracts more from the patient's respect for his physician than an unsuccessful operation for a felon. If the physician is not sure of his diagnosis and does not cut deeply enough, the patient is not relieved, and is liable to become embittered against the physician. The diagnosis should be made early, and the patient should be directed to the nearest surgical operating room. Riedel says that he dreads minor surgery more than major operations, as it is on an infected soil. The proper treatment

98. **Quantitative Determination of Amount of Pleural Effusions.**—Achard has simplified Niclot's original quantitative test for pleural effusions, and Schifone has been trying it in the clinic. His conclusions are extremely favorable, and he recommends this test as eminently simple, rapid and easy while it is accurate and reliable enough for all practical purposes. The principle of the test is the injection of a stain into the pleura after withdrawal of a small amount of the fluid. The patient then bends over and backward, etc., to ensure that the stain spreads evenly through the effusion in the pleura. A small amount is then withdrawn and the tint compared with the mother stain. The particulars of 7 cases are given in detail in which the test was applied and the findings compared with the further history of the case. Achard's technic includes the aspiration of about 30 c.c. of the pleural effusion and, without removing the needle, injecting 1 c.c. of a 2.5 per cent. solution of methylene blue. The same amount of the same solution of the blue is then added to a liter of water, which thus contains the same amount of the stain as is now in the pleural cavity. About 30 c.c. of the effusion is then withdrawn and the tint is compared. Four tablespoonfuls of water are then put in two glasses. A teaspoonful of the mother solution is then added to one glass, and a teaspoonful of the fluid obtained by the first aspiration. In the other glass, a teaspoonful of the fluid obtained by the second aspiration is added to the water and also a teaspoonful of clear water. The two glasses then contain equal amounts of water and of pleural effusion—the amount of the stain is the only variable quantity. If the tints in each are alike, then the pleural effusion amounts exactly to one liter. If the tint is lighter in the second glass, then the effusion amounts to more than one liter; if darker, then it is less than a liter. By adding more teaspoonfuls of the stain it is possible to measure the exact amount. A good control test is to compare two test tubes containing each equal amounts of the pleural fluid before and after staining. A 1 per 10,000 solution of methylene blue is then dropped, a drop at a time, into the first test tube, comparing the tint with that of the stained pleural effusion, until the tints are alike in each. The exact amount of the effusion can thus be calculated by a simple formula.

101. **Serum Treatment of Syphilides.**—Risso and Cipollina review the history of serum treatment of syphilis, from Feulard, Tommasoli and Kollmann to Mazza's attempts to render guinea-pigs immune by inoculating them with serum from syphilitic blood, and the later work in this line. They then describe their own experiences which have given much more favorable results than any others previously published. They administered their specific immune serum, obtained by inoculating dogs with blood from syphilitics, not merely the serum. Sixteen patients have been treated with this curative serum. Fourteen were in the secondary stage and specific treatment had not been commenced. Two were in the tertiary stage. Nine of the 14 in the secondary stage were promptly cured, 2 left before the course was completed, and 3 are still under treatment. One of the 2 patients in the tertiary stage was completely cured, and the other is still under treatment. All the patients displayed marked improvement. The papular and the macular manifestations vanished more rapidly than under ordinary mercurial treatment. Even the lesions on the mucous membrane healed without the necessity for local treatment. A tendency to recurrence was noted in 2 cases, but it was soon dispelled by return to the serum. Specially interesting was the subsidence of a gummy tumor in the nose under the influence of a dozen injections of the serum. The 4 patients still under treatment already display great improvement. The writers are convinced that the serum has an unmmistakable active action on the manifestations of syphilis. It is probably specific, but may act merely by stimulating the natural defenses of the organism. Their results testify that it is not impossible to obtain an effectual serum from animals refractory to syphilis. It is possible that animals can be syphilized after all, although the manifestations may not be like those of human syphilis. The first injections were made in June, 1904, the inoculation of the dogs was commenced in May. Blood from syphilitics in the secondary stage, who had not yet been submitted to specific treatment, was injected under the skin and into the peritoneum of the animals. The injections were repeated three or four times with an interval of five or six days. A week after the last injection their blood was drawn for the therapeutic injections. The contagiousness of the blood of syphilitics in the secondary stage is evidence that it must contain more or less of the specific virus. The animals were inoculated with some of the formed elements of the blood in a hemolytic solution along with the serum, hoping that they would enhance the action of the serum. This hope was sustained by the fact that when too large a proportion of the dissolved corpuscles was added to the fluid injected, symptoms of irritation were noted. The particulars of the various cases are given in detail; from 2 to 5 c.c. of the animal serum was injected into a muscle every day, or at longer intervals. A glycerin-aqueous extract of the spleen and liver from animals that had been repeatedly inoculated with the blood from syphilitics was also tested. The experiments in this line are not yet sufficiently advanced for any report.

102. **Serum Diagnosis of Typhoid by Latest Technics.**—Borelli has been testing, among other things, Asakawa's method of freezing the serum for the agglutination test. He finds that it is extremely simple and easy, and materially shortens the time required for the test. The serum or blood dried on blotting paper is mixed with the emulsion of typhoid bacilli, and the test tube is placed in a freezing mixture. As soon as it is frozen it is taken out and allowed to thaw. As it thaws, the agglutinated clumps can be seen in the fluid. The entire procedure is complete in a very few minutes. The agglutination by this freezing method is specific, but it is not quite so sensitive as the original Widal. It will be found very useful when rapid work is desired. The reaction is equally marked under the microscope whether fresh or dried blood or serum is used, but for macroscopic examination, only the serum and blood dried on blotting paper respond effectually.

104. **Test for Hyperchlorhydria.**—Cippolina has found that the tint of a fluid containing "anilin water" and sodium hypochlorite varies remarkably under the influence of different amounts of hydrochloric acid added to it. The proportions should be .5 c.c. of the anilin water; 2 c.c. of the aqueous solution of hydrochloric acid or gastric juice, and four or five drops of a titrated solution of sodium hypochlorite. The color turns to amethyst and the fluid remains clear if the proportion of hydrochloric acid is 2 per 1,000; if less than 2 per 1,000, the color is purple and the fluid become turbid, while the tint is a very dark violet if there is less than .25 per 1,000. Certain other acids affect the color in the same way, but as these acids are in much smaller proportions in the gastric juice than the hydrochloric acid, they do not disturb the diagnosis of hyperchlorhydria or of hypochlorhydria.

106. **Elective Stain for Spores.**—Scagliosi's method consists in fixation of the material in van Gehuchten's or Hermann's fluid; drying in the air; staining with Ziehl's fuchsin; rinsing and counterstaining with an aqueous solution of methylene blue. The contrast staining is particularly fine by this simple method. The material at first is left in contact with the fixation fluid for thirty minutes (van Gehuchten's) or fifteen minutes (Hermann's). It is then allowed to evaporate.

108. **Heart Complications of Articular Rheumatism.**—Sarcinelli denies that heart complications are so common as generally accepted, and asserts that in many cases the heart lesions are probable primary. When the heart complications do occur it is generally in connection with the subacute or chronic forms of articular rheumatism. The heart lesion may be acute, subacute or chronic; the subjective symptoms frequently do not harmonize with the objective findings. This is due to the varying manner in which the heart in different subjects responds to functional stimuli. On this account treatment should be individualized.

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THE IMPORTANCE OF GENERAL THERAPEUTICS IN THE TREATMENT OF OCULAR DISEASES.*

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In offering a few thoughts on "The Importance of General Therapeutics in the Practice of Ophthalmic Medicine and Surgery," I wish to sketch in broad outline what is in my mind, and to leave each of you to fill in the details of the picture from your own experience. It is to the principles which guide, more than to the means to be employed, that I desire to direct attention; for although the treatment of disease is to a very large extent empirical, the discoveries made in physical, as well as in physiologic and chemical, laboratories are slowly but surely placing the subject on a more scientific basis, and showing in many instances that so far from empiricism being opposed to rational therapeutics, the two have many points of contact and are indeed interdependent.

For most men it is easier to put trust in authority than to exercise independent judgment; and so, instead of thinking for themselves, they accept a clearly expressed opinion as a scientific fact, or even mistake a mere impression for a real opinion. Many of the therapeutic measures so much in vogue at present, radium, *x*-rays, currents of high potential, etc., etc., are purely empirical, and the routine employment of these forces, of whose real properties we at present know so little, seems rather to be a reversion to the old idea of the supernatural origin of disease than to be founded on a due recognition of its natural causes. Doubtless these means are full of promise, and the investigation of the ray world that extends on either side of the narrow limits of the visible spectrum may reveal mysteries of which, at the present moment, we can form merely a very faint idea; but at this stage of the study it can only bring discredit on ourselves and on our methods to make such an assertion as that, under the influence of ultra-violet or any other rays, "cancers are cured."

While it must never be forgotten that treatment is an art, and is none the less valuable because it is empirical, yet the whole trend of modern progress is to appeal less and less to authority. We endeavor in all things to go to Nature direct and by patient research to find out her secrets. Investigation of this kind demands much time and labor, and the life of man is short and his mental and physical capacity for work limited. If any real advance is to be made, the extent of the subject and the briefness of existence make subdivision of labor necessary, and specialism is thus the natural outcome of increase of knowledge. It is an inevitable result of evolution, and as an ideal ought to be symbolic of the highest form of efficiency.

This tendency to specialize is observable in every branch of inquiry, in philosophy, in politics, in engineering, in music and in literature, as well as in medicine, and the organs of special sense have always been looked on as furnishing legitimate subjects for special study. Among these, ocular investigation has ever held a foremost place. The tissues of the eye are so delicate, its structure so complicated, and its diseases so numerous and so frequently followed by disastrous results that there is little wonder that oculists have existed from time immemorial. In the early days, however, these men had no claim whatever to be called specialists. They possessed, doubtless, a certain amount of special manual dexterity, but the majority of them were charlatans of the very worst description, practicing on the eye exclusively because they were wholly ignorant of the general principles of medicine and of surgery. A specialist in the true sense of the word is one who has conscientiously studied the body as a whole, and the highest and best type is he whose anatomic and physiologic knowledge is most perfect, and whose early training has fitted him to take broad and comprehensive views of pathology. For all efficient higher training there must be a proper foundation, and consequently the specialist in medicine must combine in himself the diagnostic skill of the physician with the dexterity of the surgeon, and must add to these the special knowledge that gives him power and action reaching still farther along his own particular line.

Few, very few, can reach such an ideal, but all can honestly and strenuously strive to attain it.

As a result of the subdivision of labor, our knowledge in every department of medicine has increased so enormously that the study and practice of any one branch is more than sufficient to occupy the time and tax to the utmost the energies of the ordinary man. We can not, like the great masters in the past, cultivate a specialty and at the same time engage in general practice. The field is too wide. Nevertheless, if specialism is to render the highest service to the world, it must of necessity be based on an efficient system of general instruction; and consequently it is incumbent on every specialist to strive, by reading, by frequent visits to the wards of a general hospital, and by conversation with colleagues, to keep in touch with the progress of pathology, along at least its most important lines of advance. One of the besetting sins of the present age, however, is hurry, and if a man specializes too early he is apt to specialize more than he ought, and to cultivate his own department to the neglect of all others.

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An exclusive interest of this kind leads to narrow and distorted views whereby the part is magnified out of all true proportion to the whole, and, the sense of proper perspective being lost, judgment is biased and opinion becomes untrustworthy. Doubtless concentration of thought along a single line will tend to improve the power of special diagnosis, but it interferes in many cases with the ability to take a comprehensive view of the whole morbid process.

It follows, therefore, that, although the specialist may devise new means of local treatment, or improve methods of operative technic, there is a risk of his doing so without regard to the broad principles which underlie all rational therapeutics. It must not, however, be supposed for a moment that I would underestimate the value of local treatment; to do so would be to run counter to all the knowledge of the process of inflammation which we have gained through the study of bacteriology. What I desire to emphasize is the need for assigning to local treatment no more than its proper value. It is just possible that the great amount of consideration given in recent years to the study of micro-organisms has tended to divert attention unduly from the soil on which the bacteria grow.

For example, if an ulcer form on the cornea of a healthy man the probabilities are that it can easily be cured by local treatment; whereas, if the ulcer occur in an unhealthy person micro-organisms are not confined to the seat of injury, but are found, along with their toxins, both in the tissues and in the blood; consequently, if a speedy recovery is to be brought about, there must be general as well as local treatment. In the one case it might be said that the cornea was injured, but in the other that the patient was diseased, and that the ulcer of the cornea is only a symptom of his unhealthy state. Success or failure will depend on a proper distinction between these two conditions.

The researches of Pasteur and their practical application by Lister and his followers, by making successful operative interference possible in so many cases from which the surgeon had hitherto been debarred, gave a great stimulus to surgery as a whole, and with it to the surgery of the eye. In spite, however, of all our precautions and of our most careful attention to antiseptic methods, eyes are still occasionally lost by suppuration after operative interference.

As in the days prior to the introduction of antiseptic treatment, the failures are in cases where there has been previous inflammation of the conjunctiva or tear passages, or in which the patient's vitality is low. General malnutrition is as great an obstacle to success as it ever was, and the necessity for action along this line suggested by clinical observation is borne out by the results of theoretical and experimental research so ably dealt with in Professor Welch's Huxley Lecture of 1903.

"The struggle," says Dr. Welch, "between the bacteria and the body cells in infection may be conceived as an immunizing contest in which each participant is stimulated by its opponent to the production of cytotoxins hostile to the other, and thereby endeavors to make itself immune against its antagonist."

When the body is healthy it possesses the power of producing substances specifically antagonistic to all sorts of micro-organisms, but with this power any morbid state at once interferes; and as in all infections, whether local or general, "abnormal metabolism is an essential condition," patients of low vitality will be in such a state that the substances produced, so far from being antagonistic to parasitic organisms, may actually stimulate their growth.

This being so, one must not only endeavor to render the field of operation sterile, but must also devote the utmost care and attention to what is of equal importance—the giving the patient himself increased power of resistance. Good food, fresh air, rest, every means of strengthening digestion, are all essential. Should the sufferer be a poor man, who has been unfit for work for several months, and through poverty unable to procure a sufficient amount of food, he will require special care, since his tissues will be in the condition most favorable for the action of even the slightest infective taint, and also for the rapid spread of suppuration. While, therefore, every attention must be paid to strict antiseptic precautions at the time of the operation, equal care should be bestowed on the state of the patient himself, especially if he be poor and habitually ill-nourished. Were the health of these broken-down subjects better looked after prior to cataract and other operations there would be fewer failures from suppuration.

The comparative safety of modern surgical procedure has brought with it certain disadvantages. The immediate and often brilliant results following operations offer a strong temptation to run a certain amount of risk in cases where the slower but perhaps surer methods of general therapeutics are to be preferred. For example, in dealing with patients showing symptoms resulting from heterophoria, very frequently tenotomy is performed, or a rectus muscle is advanced, whereas no such procedure should be undertaken until every opportunity has been given for the recovery of the balance of muscular power by promoting an improved condition of general health. The ease and safety with which an operation can be performed tempt one to employ it as a first remedy when it should rightly be used only as a last resort.

From what has been said, it will be seen that the great advances in ophthalmic surgery have gone on *pari passu* with those of general surgery, and that both are the direct result of the labors of those who have worked out the practical applications of the science of bacteriology. So also is it true that similar advances in the treatment of diseases of the eye can be attained only by a careful study of the principles of general pathology. There can be no special study of morbid conditions in the eye apart from special postmortem appearances incident to peculiarities of anatomic structure. Nor could we expect it to be otherwise, when we remember how quickly sight is affected in all disordered states of the body, and how frequently actual pathologic changes occur in the ocular tissues as consequences of general ailments. As Paget said long ago, "No disease can be properly understood unless it be considered in its whole pathology."

Happily, modern pathology is much more than a record of postmortem appearances. It deals not only with structure, but also with function, and thereby takes cognizance of the origin and course, as well as of the results, of a morbid process. Its whole trend is to demonstrate, what has all along been known to the clinical observer, that a disease can cure itself. This all-sufficient power of Nature to bring a patient back from sickness to health is the very first lesson in rational therapeutics. It is recorded of Sydenham that when he was in doubt he consulted his own reputation and the patient's safety by doing nothing at all. Doubtless this expectant treatment can be carried too far; but probably most of you will agree that many eyes are lost from injudicious meddling which might have been saved had they been left to Nature. The wonderful powers possessed by the natural restorative agencies of the living body were, and are still, spoken of as the "constitution," or the "*vis medicatrix naturæ*"; but these words, although they encouraged a physician to hold his hand, and in consequence oftentimes saved a patient from the discomforts, and even the dangers, of what has been called active treatment, are nevertheless simply cloaks for ignorance.

The new nomenclature which is arising in connection with the study of infection and immunity is, however, promising to provide us with a means of expressing ourselves intelligibly regarding the manner in which Nature works. The chain theory of Ehrlich has provided a working hypothesis for the investigation of the phenomena associated with the great problem of life and death. Just as the strength of a chain is measured by its weakest link, so must the resisting power of the body be estimated by the vitality of its constituent cells.

An organ may, to every form of physical examination, appear quite sound, and yet may break down quickly and completely under the strain of any infectious disease. There is inherent corpuscular weakness, and consequently the ultimate appeal must always be to the individual corpuscle. If this be granted, there is no difficulty in explaining the shortsightedness that sometimes occurs as a sequela of measles or scarlet fever, or the destructive choroiditis associated with the progressive myopia that is occasionally met with in the children of agricultural laborers, whose open air life ought, in the absence of inherent weakness of the tissues, to have effectually prevented the onset of such a condition.

On this theory, then, the organic life of the individual is simply the aggregate of the corpuscular life, and the more intimate our knowledge of the changes taking place in the cells of the body, the more surely shall we, in the cure of diseases, be able to bring the resources of art to the assistance of Nature. The hypothesis leads us further, for it raises the all-important question: Could the vital resistance not be so much strengthened that disease would be prevented?

Undoubtedly prophylaxis is the highest form of therapeutics, and of late, both by the cultivation of sanitary science and by the practical demonstration of the use of antitoxins in the treatment of diseases, great advances have been made in this direction. The study of the former, by bringing prominently forward the laws governing health, teaches not only individuals, but also whole communities, the value of an abundant supply of fresh air and of pure water, combined with a perfect system of drainage; while the latter has shown that the blood, when it is supplied with a quantity of a specially prepared serum is reinforced by those very constituents of which it was most in need, and without which the recovery of the patient was impossible.

The study of antitoxins is as yet in its infancy, and so far we possess specifics of this kind antagonistic to only a few diseases; but there is no reason to doubt that with the advance of science and the increase of knowledge serum treatment will come to bulk more and more largely in medical practice; until, perchance, we may at length be provided with a serum whose use at the right time will prevent that greatest of all ocular dangers, sympathetic ophthalmia.

Dealing still with the inner corpuscular life of the body, we are reminded that the full activity of the muscle corpuscle is essential to health, and this affords a ready explanation of the great importance of both active and passive exercises in so many different morbid conditions. In my own experience there is nothing of more value in checking the progress of myopia in the young than a well-regulated course of Swedish gymnastics, and what is true of myopia is equally true of every form of ametropia.

It is not enough, more especially when one is dealing with children, simply to adjust glasses suitable for the correction of the error of refraction. A quick estimate must at the same time be made of the patient's general strength, for it is most important to remember that, though the demand for work made on the ciliary muscle may not be unreasonably great in itself, yet it may be altogether excessive in relation to the individual in whom it is made. While, therefore, the error of refraction must always be carefully corrected, so that the ciliary muscle may do its duty under the best possible conditions, every effort should also be made to develop and strengthen the whole muscular system by sufficiency of proper food, by drill, by exercise on the bicycle, or, preferably, on horseback, and by an active outdoor life.

In the eye, just as in any other part of the body, the limits of muscular capacity must be respected, and the amount of work to be done must be adjusted accordingly. How often do patients suffering from lack of nerve energy try to rest and read at the same time; for example, when invalids read in bed! They are attempting the impossible. The aching eyes and headache of which they usually complain are evidently due to nervous and muscular fatigue, and when there is any error of refraction, the ciliary muscle, already weary, becomes quite incapable of meeting the call on it.

Day after day at the Glasgow Ophthalmic Institution I see children sent from the poorest schools of the city by their teachers "to get spectacles." In nearly every case an error of refraction exists, but in many it is so slight that in all probability it would cause no trouble were the general health satisfactory. Most of these children are underfed, live in unsanitary houses, are the victims of unwholesome habits, and are in consequence physically unfit to bear the strain of continuous school work. Obviously, under these circumstances, it is wiser to prescribe rest for the eyes than to supply glasses, which by the relief they afford encourage the child to struggle, only to have afterward, under the stress and strain of preparation for the government inspection, a more serious breakdown.

It follows, then, that I have no sympathy whatever with those who desire to separate optical from medico-surgical ophthalmology. Such a divorce is most irrational, for under no circumstances can the living eye be treated simply as an optical instrument. The fitting of spectacles is neither a mathematically exact process nor in itself a complete remedy. As the late Dr. John Brown, the gifted author of "Horæ Subsecivæ," said, "the watch must be mended while it is going." The eye is not only in the body, but it is also of the body, and the proper treatment of its optical defects requires the physician's skill just as much as does the treatment of its diseases.

On the other hand, it can not be insisted on too often, or too strongly, that all these optical defects should be corrected early and thoroughly, for eye strain is accompanied by symptoms as numerous as they are varied, and its persistence is in consequence attended by grave dangers to the general health. The highest ideal of one profession is to discover and deal with all the causes of a disease, and these can only be found through a thorough knowledge of pathology. The more limited, therefore, the pathologic outlook the more deficient will the general treatment, and so it follows that therapeutics to be rational must be founded on an accurate knowledge of the natural history of the ailment.

According to this view, disease can not be regarded as a morbid entity which for the time being has taken possession of the body, and of necessity must be removed by means of powerful remedies. On the contrary, it must be looked on as a natural process gone wrong, and the physician is the guide who, confident in himself and full of the discretion and self-reliance begotten, and only begotten, of a power of accurate observation, pilots the sick man through the malady and brings him back to health. Whenever it is recognized that disease is due to the perversion of natural processes the path to its prevention or relief is at once made easier, for it is obvious that the very first indication for treatment is to maintain, or to improve, the nutrition of the body. The patient must be supplied with food of proper quality and in sufficient quantity to satisfy his needs.

As, however, the food, after passing through various preparatory changes, must be assimilated before it can be utilized for the nourishment and the repair of the various tissues and organs, there must, for satisfactory nutrition, be a healthy state of the tissues themselves; the blood supply must be of good quality and in sufficient quantity, the nervous system must exercise a proper controlling influence, and heat and light must be present in abundance. No doubt some corpuscles, more especially leucocytes, inherit from the parent cell and possess, uncontrolled by any nervous influence, the power of absorbing nourishment from the blood; but it is certain, so far as the fixed corpuscles are concerned, that disturbance of innervation lowers nutrition and lessens the power of resistance to the attacks of micro-organisms. In support of the statement that in many instances the nerves exercise a trophic influence over the tissues, it is only necessary to mention blepharitis, associated with errors of refraction; keratitis, the accompaniment of zona ophthalmica, or ulcer of the cornea following the extirpation of the gasserian ganglion.

Existing contemporaneously with the process of assimilation, there is also always a process of excretion. The corpuscles take up their food supply from the blood or from the lymph, absorb what they require and reject the surplus, and throw off the effete materials.

If the health of the cell is to be maintained at a proper standard provision must be made for the complete elimination of these waste products, for if they be retained in the blood a state of general toxemia will soon supervene, and this, if it persist for a considerable time, even to a slight extent, will, by lowering the state of the corpuscular health, seriously interfere with the resisting powers of the body as a whole. If, therefore, the nutritive value of the blood is to be maintained at the normal, it is imperative that all toxins be removed at the earliest possible moment, and to this end Nature has made provision in the bowels, the liver, the kidneys, the skin and the lungs. The constant and free activity of these channels of excretion is essential to health, and if, by reason of illness, the function of one be temporarily interrupted, the others are always ready to undertake vicarious duty.

A very short clinical experience will, however, prove that the full functional *activity of any one*, *e. g.*, the skin, is under certain circumstances of more value than the combined activity of all the others. For example, in the early stages of diseases of the uveal tract a mercurial purge and alkaline saline draughts stimulate the liver, bowels and kidneys, and their administration is often attended by the most satisfactory results; whereas, in inflammation of the optic nerve, of retrobulbar origin, relief is more quickly obtained by free diaphoresis; and in toxic amblyopia, due to the abuse of alcohol and tobacco (the causes of the trouble having been removed and digestive disturbances corrected by appropriate means), vision returns most speedily under the strengthening influence of a sea voyage or of a sojourn in the dry, bracing air of the mountains, conditions in which the blood receives a plentiful supply of oxygen. One of the most familiar examples of the evil result of improper feeding accompanied by defective elimination is found in *phlyctenular conjunctivitis*, and I therefore select the treatment of this disease as a practical illustration of what I have been saying.

The sufferers from strumous ophthalmia are very numerous, and are for the most part children under 10 years of age. Although some of them may present the outward appearance of good health, most of them are, owing to defective assimilation and excretion, either abnormally pale, or unnaturally livid. They have but too obviously inherited the miserable legacy of constitutional weakness; and the inherent vulnerability of their tissues has been intensified by improper dieting and by overcrowding in unsanitary houses. They are called scrofulous, but as yet there are no symptoms to show that the tubercle bacillus has effected a lodgment; and careful examination fails, as a rule, to discover it lurking in the conjunctival sac, although it is in children such as these that one would expect to find this micro-organism developing and increasing most rapidly. The Germans speak of them as "candidates for tuberculosis," and the increase of lymphocytes, together with the deficient supply of multinuclear leucocytes, in the blood, mark them out as badly protected against any form of infection.

The eye trouble very often follows an attack of measles or other of the exanthemata, and although under favorable circumstances it may speedily subside, it has a most characteristic tendency to recur, unless every cause be taken in hand from the very outset. If left alone, or simply treated by local remedies, the ophthalmia often proves to be the very first warning of the imminent danger of tubercular infection. This is especially likely to happen in those patients in whom photophobia is most distressingly persistent, although lesions of the conjunctiva or of the cornea are at first absent, or are of a very trivial character.

It is by no means unusual for the conjunctivitis to alternate with suppuration of the middle ear, or with eczematous eruptions on the head or other parts of the body. Nutrition is seriously interfered with, and the coated tongue studded with large red papillæ shows the irritable condition of the mucous membrane of the whole intestinal tract. There is sometimes a constant craving for food, and almost invariably more is eaten than can be digested; fermentation results, the belly is distended, and the alvine evacuations have an offensive smell and an unnatural appearance. The urine is high colored, deposits urates, and often contains traces of sugar. The skin is pale and rough, the flesh hangs loosely on the bones, the hands and feet are often persistently cold, and the head perspires freely.

After a time the system becomes infected by tubercle bacilli, and then the joints, both large and small, are very frequently destroyed by tubercular inflammation of their synovial membrane and caries and necrosis of the bones. Severe ectropion, causing hideous disfigurement, will arise if the bone necrosis occur in the neighborhood of the orbit, and indelible scars invariably result if there be suppuration of the lymphatic glands in the neck and elsewhere.

Unless the cornea has, through neglect, become ulcerated, local treatment consists simply in keeping the child's face and hands clean, and in applying sedatives to the eyes. The real treatment of the disease is constitutional. It is necessary always to bear in mind that the very essence of the ailment lies in the malassimilation of food, and that most, if not all, cases arise as a result of improper dieting. You may be told that the child pecks and trifles with its food, and eats very sparingly, and that may be quite true so far as the regular meals are concerned; but by careful inquiry you will usually discover that the small appetite at the proper times for eating arises from the patient having been, in response to cries for "a piece," supplied liberally between meals with bread and butter, sweets, fruit or any other eatables that may have chanced to be at hand. Many think that a good appetite is a sign of good digestion, though all the time the latter is so poor that in the overladen bowels toxic substances are constantly being manufactured, and these, after they are absorbed, excite abnormal effects both in the eyes and in all the other tissues of the body.

Instead, therefore, of eating too little, these children eat too much; and, although they may appear ill-nourished, the malnutrition is due to malassimilation rather than to insufficiency of food. The first thing to be done, therefore, in treating a case of phlyctenular conjunctivitis is to give particular directions regarding the diet. The child must not be allowed to eat whenever it cries for food, but ought to be fed at regular intervals. Nor must it get what is among the poor popularly called "the run of the house"; it should have meals specially prepared, and in quantity and quality of such a kind as not to overtax the powers of digestion.

Sugar in every shape and form, fruits, pastries, potatoes, etc., must be rigidly excluded from the dietary, and it is usually advisable to confine the patient wholly to milk and water for the first forty-eight hours of the treatment, and then to add gradually meat soups, eggs, fish, fowl, rice, etc., as the tongue becomes clean.

In addition to the careful supervision of diet, the free elimination of the toxins, which, as a result of malassimilation, have accumulated in the blood, must in every way be promoted. This is to be accomplished by stimulating the action of the kidneys, the bowels and the skin, more especially the last. Hence the importance of the hot bath, which the child should have every night at bedtime, diaphoresis being further encouraged by the wearing of a warm flannel nightgown. It is usually advisable first of all to administer a dose of castor oil; but it should be borne in mind that many of these children do not bear purgatives well, as the intestinal mucous membrane is so irritable that troublesome diarrhea is easily induced.

Of drugs, none is so useful as tartar emetic, which should be given as Mackenzie advised, in slightly nauseating doses. Its chief virtue depends on its diaphoretic action, and its efficacy is greatly increased when it is administered with a laxative, e. g., powdered rhubarb. If the tongue be brown, a few grains of gray powder may with advantage be added to the rhubarb and antimony combination. Under this treatment it is wonderful how soon the whole appearance of the patient changes.

As the power of digestion becomes greater the skin improves in color, the hair loses its dry and brittle character, the hands and feet keep warmer, and the child, instead of lying with its face buried in a pillow, and fretting and crying when spoken to, is now quite good tempered and runs about and amuses itself with its playthings. Any indiscretion in diet will, however, promptly bring on a relapse, for in these cases the conjunctiva reflects the conditions of the gastrointestinal mucous membrane even more quickly than the tongue. After some forbidden food has been eaten, intolerance of light, blepharospasm and increased lachrymation speedily show themselves, while the tongue may not become furred till some days after. The fear of relapse makes it imperative, therefore, that treatment be continued for at least a fortnight after the recovery seems complete.

As soon as possible the child ought to be sent to the country, preferably to a high, dry, bracing locality, and it should live out of doors as much as the weather will permit. The seacoast should be avoided, as the glare from the water is apt to prove irritating to the eyes and to cause a relapse. In an ordinary case of strumous ophthalmia, no further treatment than that just indicated is required. If a case is not making satisfactory progress, careful inquiry should at once be made as to whether the prescribed diet and the nightly warm bath are being strictly attended to.

Whenever the child's powers of digestion, respiration and excretion become healthy, fewer restrictions as to diet are necessary, and a plan of treatment may then be entered on to improve the general nutrition still further, and to promote the repair of any local lesions in the eyes themselves. Such restorative methods aim at supplying the blood with something specially needed at the moment, but if they were to be commenced prematurely they would do much harm by adding to the child's difficulty in assimilating food. In every attempt to assist recuperation the all-important indication is to stimulate appetite and to strengthen digestion by means of simple tonics, and on no account to prescribe iron, phosphates, cod-liver oil or the hypophosphites if the tongue be either coated with fur, or red and irritable.

It is not necessary to discuss this subject further, for the guiding principles applicable in the treatment of phlyctenular conjunctivitis apply with equal force to the general treatment of all eye diseases of constitutional origin.

The first condition of success is to find out what is at the root of the trouble, be it syphilis, gout, rheumatism or anything else, to prescribe appropriate remedies in such dose and state of combination as will suit the individual patient, and then to persevere steadily until the disease be overcome. The all-important point is to make a searching diagnosis early, so that from the first the treatment may be both local and constitutional.

Neglect may bring about complications, and, of course, if the tissues be destroyed, no amount of antisyphilitic, antirheumatic or any other kind of medicine can replace them. In many instances, on the other hand, when, to begin with, the prospects of success are not hopeful, earnest perseverance will accomplish much, while intermittent and unsettled efforts will altogether fail.

What I have just said must be taken as applying to the line of treatment rather than to any particular drug, for it can not be too strongly urged that, no matter how high the reputation a remedy may have, it at once does harm to the individual for whom it has been prescribed if it interfere with his powers of digestion and assimilation of food. It is a matter of common observation that the sight of those suffering from atrophy of the optic nerve, or from disease of the choroid or retina, deteriorates much and quickly whenever there is gastrointestinal disturbance. He is, as a rule, the most successful practitioner who can at once vary the preparation and the combination of the drugs to suit the peculiarities of the patient, and at the same time never depart from the line of treatment he has laid down for himself.

Such resourcefulness on the part of the doctor is of the greatest value to the patient, and I would add that in medicine, probably more than in any other profession, the personality of the practitioner counts for much. That is where the man himself and his natural endowment tell, but, though this personal power has the obvious advantage of inspiring the patient with hope at a time when the disease may seem to be pressing on with such resistless force that he is beginning to despair, it has the disadvantage that the influence of the doctor dies with him. His successors may model themselves on his manner and methods, but there must always be a difference.

That leads me to say that one of the greatest hindrances to a proper study of therapeutics is the ease with which remedies are supplied to the doctor by the manufacturing chemist. These drugs, the products of the chemical laboratory, are advertised largely, and are said to effect so much good that there is a great temptation to try them, and if, perchance, urgent symptoms disappear after their use they are only too apt to be employed indiscriminately. The mixtures so supplied are elegant and palatable, and the pills, tabloids, etc., are very convenient and easily swallowed; but it is only when he writes his own prescriptions that the practitioner can make himself so thoroughly familiar with the properties of drugs, that he is at once able to vary his formula to suit the needs and idiosyncrasies of an individual patient. There is much to be said in favor of the apprenticeship system in medical training, for with drugs, as with all other things, you can never know them properly until you have handled them and dispensed them.

Assimilation, elimination and recuperation embody the great principle underlying all rational therapeutics, but before concluding I must refer briefly to rest, in so far at least as it is an aid to nutrition. During tranquil sleep the restorative powers of Nature work undisturbed, and in calculating the risks of an operation Paget very wisely emphasized the fact that a patient's capacity for sleep was of the utmost importance.

I do not rec[illegible]ct ever having had serious trouble with an operation c[illegible] when the patient slept soundly for several hours imm[illegible] after being taken back to bed, and in order to [illegible] postoperative slumber it is my usual practice ha[illegible] before the time fixed for the operation to adm[illegible]ught containing the triple bromids. On the [illegible] when a patient is wakeful and talkative, and [illegible]ly tossing about in bed, it is almost impossi[illegible] tention. Unless me[illegible] ma[illegible] is usually w[illegible]nd to heal by first inskin a[illegible] leave the [illegible] quickly discovered to keep him these cha[illegible] to remove the bandage and alby reason o[illegible] think [illegible] bent position and to sit on a interrupted, practice is [illegible] needful rest. One of the vicarious dut[illegible] mically. This [illegible] an operation

A very sh[illegible] repose, gives Nature [illegible] consequently, if I that the full [illegible] never slow to avail [illegible] patient suffering. my skin, is under[illegible] It is not good practi[illegible] morphia hypoderthe combined [illegible] of continuous the early stage [illegible] which she is purge and alk[illegible] bowels and kidneys, and th[illegible] however, always to subdue pain, for it is, if rightly interpreted, oftener kindly than hurtful. As a rule, it is a danger signal, warning both surgeon and patient of something wrong. For example, if pain recurs some days after a serpiginous ulcer has been carefully cauterized, it is almost certain that reinfection has taken place, and the prompt application of local antiseptics may save much future trouble. The eyelids form natural splints for the eyeball, and close instinctively whenever the globe is injured. This movement not only protects the eye from further harm, but also relieves the patient by keeping him in the dark, the physiologic rest for the eye. As a sequel to diseases of the choroid or of the retina, a cataract frequently forms, and by shutting out light secures rest and gives Nature the opportunity she has been seeking for the repair of the deep-seated mischief; and so successful is she that if, after a time, the cataract be extracted, the visual result obtained is often far beyond our expectations. In the same way atropin, by paralyzing the ciliary muscle, keeps the eye at rest, and few things are more wonderful than the rapidity with which, after the efficient application of the mydriatic, pain is relieved and a turning point is reached beyond which the patient is on the road to perfect restoration to health.

In one of the charming papers of Dr. John Brown, to whom I have already referred, he tells that, when a student asked a celebrated artist how he mixed his colors, he received the unexpected reply, "With brains, sir"; and such an answer is as true in regard to therapeutics as it was under the circumstances which called forth those striking and memorable words. What is wanted in this very advanced age of medicine is not more learning, but the more exact application of what we have. We require to be made more conscious of the power of knowledge properly employed. Our experience teaches us facts, but it is only when, through a study of pathology, we get an explanation of the laws and principles underlying the facts that we can act with a well-defined purpose and can utilize our knowledge in the highest interest of humanity.

Retrospect is always instructive, for it is from the experience and lessons of the past that the requirements of the future may be deduced. And what a past has ophthalmology! When we recall the name of Mackenzie, of von Graefe, of Donders, of Helmholtz, of Bowman, of Critchett, and of your own countrymen, Williams, Agnew, Loring and Norris, what visions of intellectual power, of manful and patient purpose, of earnest effort in the pursuit of truth, of the bright flash of illuminating genius, rise before us!

These founders of modern ophthalmology, these masters of our science, had not our opportunities, but they possessed a thorough grasp of the clinical history of disease, and their strong common sense, begotten of observation and experience, enabled them to see what could be done by art and what was best left alone to Nature. They may have known less than we do, but if antiseptic surgery and the refinements of refraction be excluded, their practice in the treatment of disease was not a whit inferior to that of the present day.

Time would fail, and words are inadequate, to describe what manner of men these were who have adorned our profession and have left us the legacy of their skill and of their characters. Let us remember that we in our turn have a legacy to bequeath, and if we are to hand on to our successors a splendid heritage, still greater and grander than that which we ourselves have received, we must try more and more to be animated by the spirit that inspired the masters of the past, and to seek to work as did they with singleness of purpose, untiring industry and steadfast faith. "With firmness in the right as God gives us to see right, let us strive on to finish the work we are in," and, while we prove all things, let us see to it that we hold fast only to that which is good.

Original Articles.

THE SANITARY AND MORAL PROPHYLAXIS OF VENEREAL DISEASES.

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It is generally recognized by those who have studied this subject that the prophylaxis of the class of diseases comprehended under the general term "venereal" is the most complex, difficult and baffling of all the problems of social hygiene which confront us at the present day. My object in this paper is simply to indicate the lines along which this prophylactic work should be undertaken and to recommend certain measures which are immediately available and which promise to be effective in limiting, at least, the evil we wish to prevent.

In the first place, it is necessary to clear away certain misconceptions which evidently exist in the minds of many of the medical profession as to the purely sanitary character of this problem. Venereal diseases possess certain peculiarities in their origin and mode of propagation which distinguish them from all other infectious diseases, and our methods of dealing with them must be differentiated from ordinary sanitary methods, and must be adapted with special reference to their mode of communication. Especially would I emphasize the view that these diseases are not merely diseases of the human body; in their essential causes they are diseases of the social organism; their prophylaxis is preëminently a socio-sanitary problem, the only correct solution of which must be sought for in the co-operative effort of all the social forces, educational, moral and legislative, as well as sanitary.

It is hardly necessary to pass in review the extent to which these diseases prevail, their pathologic importance and their dangers to the public health. I may, however, refer briefly to one phase of venereal morbidity of the utmost importance from a biologic standpoint, and which gives to these diseases their superior significance as a social danger.

The distinctive feature of venereal diseases is that they specifically affect the reproductive organs; they damage or destroy the functions through which life is perpetuated, and thus defeat the social aim of marriage —gonorrhea, by its inhibitory influence on the reproductive capacity, and syphilis by its blighting and destructive effect on the product of conception. The important relations of these diseases with marriage have never been sufficiently appreciated, even by the medical profession. Marriage constitutes a favorable culture bed for the germs of syphilis, and is the most prolific source of accidental innocent inoculations. The vast complexus of morbid states, dystrophies and degenerations which make up the pathology of hereditary syphilis, have their almost exclusive origin in marriage. The murderous influence of syphilis on the offspring, often extinguishing in germ the posterity of many families, is well known. Modern science has taught us that gonorrhea is an even more potent factor of depopulation than syphilis. A large proportion of the involuntary or enforced childlessness of many couples is due to gonorrhea. Through the process of parturition, gonorrheal inflammation becomes transformed into a dangerous and even deadly infection. A large percentage of blindness and vulvo-vaginitis of young girls results from the introduction of gonorrhea into marriage.

The extent to which these diseases prevail in married life is much greater than is commonly supposed. Every motive leads to their concealment. I have elsewhere stated my conviction that there is more venereal infection among virtuous wives than among professional prostitutes in this country. I repeat, then, that the chief social danger of venereal diseases comes from their destructive effects on the health and the productive energy of the family. The office of social hygiene is not simply to protect the existing population from disease; it embraces in its objects the welfare of the descendants, those who are destined to continue the race. This protective duty extends to the unborn children, who should not be deprived of their birthright of vitality and physical vigor.

The term "prophylaxis" naturally suggests the intervention of the sanitary officials, who are the accredited representatives of the state in all matters relating to the care of the health of the people, and yet we have in this country the singular spectacle of a large and important class of diseases, dangerous to the public health, a serious menace to the welfare of the family and of the race—diseases which are confessedly contagious, essentially evitable, and yet absolutely ignored by our sanitary officials. What is the explanation of this policy of inaction?

Undoubtedly, one cause is the comparative failure of all methods hitherto employed to materially diminish the spread of these diseases, and the hostility of public sentiment toward the legal recognition of prostitution, which is the chief source of these diseases.

Without entering fully into the consideration of the system of reglementation employed in continental countries, it may be said that it has proved defective as a sanitary scheme and is condemned by its practical results. Beside, it is found that the large proportion of public prostitutes can not be subjected to sanitary surveillance, while the clandestine prostitutes, who are the most active spreaders of contagion, escape its operation altogether. The fatal defect of the system is that it ignores the masculine spreader of contagion.

The sanitary authorities, in dealing with a typhoid epidemic, might as well attempt to sterilize the chief infected water supply while allowing a stream of contamination to be continually pouring in and, at the same time, ignoring thousands of infected private sources of supply constantly poisoning the consumers. As well might the health officer of a port attempt to prevent the importation of plague from an infected vessel by quarantining the infected women and allowing the infected men to go free. It is the unilaterality, or "one-sidedness" of this surveillance, as if the women were the exclusive sources of contagion, which constitutes its essential weakness as a sanitary scheme.

It may be positively affirmed that venereal diseases are not susceptible to the application of the sanitary methods ordinarily employed for the control of contagious diseases. The first essential to the success of any scheme of sanitary control is the co-operation of the medical profession in reporting all cases of contagious disease coming under their professional care. Now the law requires that every infectious disease, dangerous to the public health, shall be reported to the health officials. Venereal diseases fulfill both these conditions, yet are exempted from obligatory notification. These diseases are protected by their privacy, their secrecy, their shameful character, from notification.

Another method of prophylaxis employed by sanitarians is education. In the presence of an epidemic disease the people are enlightened as to the modes of its communication, the conditions which favor infection, the means of avoiding exposure, etc. In case of a chronic disease, like tuberculosis, the public is informed of its dangers, of the agents by which it is propagated in family and social life, of the risks these agencies carry, and of the best means of avoiding these risks. During the past year over 100,000 circulars conveying such educational information, printed in different languages, were distributed by the health board of New York City. I have approached two successive administrations of the health department of that city and urged the adoption of a somewhat similar method for the diffusion of knowledge respecting the dangers and communicative modes of venereal diseases; but was informed that such information would offend the moral susceptibilities of the community.

It is to be remembered that sanitary methods are based on, or rather determined by, the contagious mode of diseases. The sanitarian does not attempt the impossible task of exterminating the germs of disease; his efforts are directed to preventing the contact of these germs with the healthy. With this view, isolation or separation of the sick from the well is the method ordinarily employed. Isolation of the great army of venereals is not practicable, nor indeed is it necessary, as the bearer of venereal disease is, with ordinary care, innocuous to those with whom he comes in contact in the ordinary relations of life. He becomes dangerous to others only by his voluntary act. Now, the common, habitual mode by which venereal diseases are propagated is through prostitution. Prostitution can not be suppressed by any legal or police force. No sanitary authority can prevent or even touch this contagious mode. Much of it is too private, secret and withdrawn from observation. Another common contagious mode is in the married relation. It is evident that the sanitarian is powerless to interfere with a relation which is essentially private and intrenched in the stronghold of what is regarded as marital rights.

There is, however, one peculiarity in the communicative mode of venereal diseases which distinguishes them from other infectious diseases and which may furnish a clue to lead us out of this labyrinth of difficulties, viz., the fact that they are communicated voluntarily. This specialty of contagious mode takes these diseases out of the category of ordinary infectious diseases which are communicated involuntarily and unconsciously. The man who contracts venereal disease from a prostitute voluntarily exposes himself to contagion. The man who infects his wife and children voluntarily exposes them to contagion. In both cases contagion is effected through the free will and action of the individual. Now, since this voluntary act can not be repressed nor controlled by force, the indications are to bring to bear restraining influences which act on the volition, the will, the morale of the individual.

Unquestionably, the most valuable measure is education. Exposure to these diseases occurs most commonly in the young, the immature, the irresponsible through ignorance. While venereal disease may occur at any period of life, it is essentially a malady of the young. Seventy-five per cent. of all infections in public women occur before the twentieth year; 25 per cent. of all infections in men occur before the twenty-first year. This is the age when "the centers of arrest," as they are termed—judgment, reflection and will—are not developed, an age when the individual is influenced by impulse, imagination and curiosity, before those maturer faculties, which exert an inhibitory influence on the actions, are sufficiently developed.

I doubt whether the impelling influence to initial debauch in young men is the result of animal passion. It is more often curiosity or a desire to prove his virile endowment, often the erroneous idea that sexual indulgence is essential to health.

It is the experience of all medical men that ignorance is responsible for a large proportion of infections in the young, and that enlightenment which would engender a wholesome fear of these diseases would preserve thousands of them from exposure.

This education would not only serve as a preservative against exposure to infection, but it would constitute the most valuable prophylactic measure against its introduction into marriage. The vast majority of men who carry disease and death into their families from uncured venereal diseases do so ignorantly. A general diffusion of knowledge regarding the nature and danger of these diseases, the duration of their contagious activity, and the terrible consequences to their wives and children would be largely instrumental in preventing these social crimes.

There is another aspect of this voluntary exposure which may be properly utilized as a safeguard of marriage. Morally, no human being has the right to communicate his disease to another. When a man, knowing himself to be the bearer of a contagious sexual disease, communicates it to his wife, in the relation established by marriage, this action comes within the operation of that principle of the law which attaches a civil or penal responsibility for injury to another individual through an act "knowingly and wilfully" committed. The man can not plead in extenuation that he had no intent to injure. The law holds that "whoever does an act likely to produce injury and injury follows, can never excuse himself by saying that he hoped a probable consequence might, by some good fortune, not follow." Certainly a man can inflict no graver injury on the pure young woman who receives him as her husband than to poison her with syphilis, which ruins her health and kills her children; or with gonorrhea, which may extinguish her hopes of maternity and render her a lifelong invalid or a subject for the operating table.

It is doubtful whether this principle of jurisprudence could be applied to the communication of disease in illicit relations, in which both parties voluntarily expose themselves to contagion, but in marriage, where the wife is an innocent and unsuspecting victim, and powerless to protect herself against injury, such a law would be equitable and just. It would not only act as a deterrent force, but it would educate the public to an appreciation of the fact that the transmsision of venereal disease is not a venial offense, especially in a relation which it is to the interest of the state to protect and to surround with every possible safeguard.

Assuming, then, that the diffusion of knowledge, especially among the rising generation, respecting sexual hygiene and the dangers and modes of communication of diseases peculiar to sexual life, is the first and most essential condition of any intelligent scheme of prophylaxis, what should be the scope of this instruction, how or through what agencies should it be conveyed, and at what age should it be given? These are questions which require thoughtful consideration.

The medical profession is the repository of the knowledge we wish to convey and the physician is the most competent instructor. Through his personal, as well as his professional, relations with the young men of his clientèle, the physician can render valuable aid in disseminating this prophylactic enlightenment, but his opportunities are comparatively restricted. In private practice he is brought into relations with young men only in his capacity as healer, after the disease has already been contracted. With the great body of the working classes, with the poor who are treated in public institutions, he is rarely brought into professional contact except in the crowded classes of the dispensaries.

It is evident that this education, to be of prophylactic avail, must be timely; it must be given before the age at which contamination commonly takes place. The agencies which serve for popular education, the public school system and our high schools and colleges, should be utilized for the purpose of disseminating this hygiene knowledge. I believe, then, that a knowledge of the physiologic laws of generation, the hygiene of the reproductive organs, and the dangers which attend their irregular exercise should form an integral, essential part of the system of hygienic instruction given in our high schools and colleges.

Instruction in a knowledge of the "effects of alcohol and other narcotics on the human body" is made mandatory by the law in the public school system of every state and territory in the United States. Certainly a knowledge of sexual physiology is quite as important as that of alcoholic physiology. A judicious qualification might be that such instruction should be given only to male students in the higher grades of our public schools.

It may be contended that such teaching would be met with protest or resistance on the part of the public, but to say that this knowledge is not proper or fitting and would soil the pure minds of innocence is absurd. Physicians can not too strongly combat the insensate idea that a knowledge of the organs which transmit life, which, in the language of an eminent clerical educator, "are given to co-operate in the mission of divine creation," is shameful and demoralizing. On the contrary, such knowledge is sound, sanative and wholesome. Its high purpose is to instruct young men how to live in accordance with the physiologic laws of a healthy nature. The teachings of science can always be translated into terms which do not offend the susceptibilities of the most modest.

If this sanative knowledge is denied young men they will imbibe from their older companions or dissolute associates erroneous and dangerous ideas, such, for example, as that gonorrhea is of no more significance than a common cold: that syphilis is a disease which is readily cured and there an end of it. They should be taught that these diseases are dangerous infections—often attended with the most serious consequences: that they may compromise the health for years or during an entire lifetime, and disqualify them for marriage. They should also know that venereal infection is the almost invariable concomitant of illicit intercourse. It is necessary that there should be preached to young men the gospel of the fear of microbes. St. Paul says, "we persuade men by the terrors of the law." Let us persuade them by the terrors of infection. Fear is by no means the most ignoble sentiment to which we can appeal. On the contrary, it is most wholesome and salutary in its effects. All hygienic precepts are inculcated on the basis of fear. We are taught to avoid all harmful or noxious external agents from fear of their consequences. Fear is the guardian, the protective genius of the human body, and we should appeal to this sentiment in endeavoring to shield young men from exposure to infection.

I shall make but brief reference to the moral teaching, which comes more properly within the province of religious teachers, as a preservative against exposure. Such training we all recognize to be the best and of the highest order. It has come to be recognized by the more progressive and broad minded of university teachers that the "training of the morals" of young men is quite as important as the training of the intellect, and that hygienic education forms a most essential part of this training. It is a question whether appeals addressed to the ethical or spiritual side of a young man's nature and which inculcate the ideals of self-reverence and personal purity are apt to be so effective as appeals based on the care and upbuilding of the physical health. In all matters relating to the functions of the body the physical consequences resulting from a violation of the laws of nature constitute the most effective deterrent.

How shall we reach the large body of the young working classes who are denied the benefits of this hygienic education in high schools and colleges? Hygiene knows no class distinctions; it is essentially democratic, and the poorer class should not be deprived of its protective benefit. To reach this class it is evident that this instruction must be collective and disseminated by means of "talks to young men" in conferences and lectures, and through the medium of printed slips or circulars.

It is no less important that the young women of this social class, from which the ranks of prostitution are largely recruited, should be enlightened as to the dangers and modes of communication of these diseases, of which they are, for the most part, in infantile ignorance. Thousands of young women suffer moral and physical shipwreck from ignorance of the fact that the loss of virtue often carries with it the loss of health. Many young women of lax moral principles are deterred from a step which would mean their moral ruin by the fear of maternity and the disgrace it proclaims. To this fear of maternity let there be superadded the fear of infection; let them know that even the kiss of a dissipated man may carry with it a dangerous and disfiguring disease. Scores of cases where syphilis has been communicated by a kiss, have come under my personal observation.

There can be no comprehensive system of prophylaxis which does not take into consideration the social conditions which favor the fall of women and their entrance into a life of shame. It is obvious that certain socio-economic conditions, promiscuity of employment, the economic dependence of women, pauperism, and the force of physical want, which impel many women along the road to ruin, lie entirely without the sphere of sanitary control: but the hygienic and moral training which, by the promotion of masculine chastity, decreases the demand, and, by safeguarding women from the wiles of the seducer, diminishes the supply of prostitutes, would constitute a prophylactic measure of great value and one which is immediately available.

I am not so optimistic as to believe that we shall ever exterminate the plague of venereal diseases; certainly I do not indulge in the utopian idea that enlightenment will prove an absolute preservative against exposure to infection, or that the inculcation of caution is an infallible cure of incontinence. I do believe, however, that when young men are fully forewarned of the dangers of irregular sexual intercourse; when they appreciate the terrible consequences these diseases may entail, they will expose themselves less often, less recklessly, less foolishly. I also believe that when men are fully instructed as to the dangers, the social catastrophes which often follow the introduction of these diseases into married life; when an enlightened public sentiment will no longer complacently consider it a husband's privilege to poison his wife and children, but will demand the enactment of a law declaring such action a legal crime, incurring penal responsibility, that this crowning infamy of our social life will be lifted from the marriage relation.

Another most valuable prophylactic measure in diminishing the spread of venereal diseases is the prompt sterilization of sources of contagion by efficient treatment. Want of time prevents a proper presentation of the superior importance of this preventive measure. Every source of infection suppressed by treatment represents a distinct gain in the reduction of venereal morbidity. The facilities for the treatment of venereal patients are inadequate, restrictive and not adapted to the peculiarly private nature of the diseases. There is not a single special hospital in this country for this class of cases, while in many cities they are debarred entrance to general hospitals. New York City provides only 96 beds for its venereal patients; while Paris, with only two-thirds of our population, has 960 beds. The facilities for treatment should be enlarged, and free, gratuitous treatment should be furnished to all who apply, not so much perhaps in the interest of the individual as in the interest of those to whom his uncured disease might prove a source of danger.

It is evident that no effective prophylaxis of this class of diseases can be brought about without the consent and co-operation of the public. The public must first be enlightened as to its need of this prophylaxis. In studying the evolution of public hygiene, we shall find that the impelling motive in the institution of most sanitary measures has been economic or commercial in-
est an invasion of the plague, the cholera
is threatened, the public is quite willing
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the enormous morbidity from this cause, of its danger to the public health, to the family and to the race, and especially ignorance of the number of its innocent victims. This ignorance is due largely to the traditional shameful character of the disease, which renders it an unsavory subject, and is fostered by popular prejudice which closes all avenues of communication which serve for the dissemination of enlightenment.

Another cause of this indifference is the popular conception of venereal diseases as the exclusive appanage of vice, confined to an obnoxious class or their consorts, and always the result of illicit relations voluntarily entered into. How can we awaken the perceptions of the public to the magnitude of this social peril, and arouse the conscience and moral sense of the public to its manifest duty to sanction and sustain all sanitary and moral measures which are essential in this prophylactic work? Certainly not by exposing the almost universal prevalence of these diseases among prostitutes, and the necessity of "hygienizing" them and thus diminishing the risks of contagion to those who voluntarily expose themselves. We must impress on them the humanitarian aspects of the situation. The conscience of the public can only be touched by an appeal based on the infection of the innocent—those who do not voluntarily expose themselves and who are powerless to protect themselves.

In carrying out this campaign of education we must have the co-operation and support of members of the laity and of men who can mold public opinion and who are an influential force in the community. Co-operation is considered the key to success in most modern undertakings, and in a sanitary movement which is complicated by so many varied social interests, the union and associated effort of all the social forces which work for good are essential. We should enlist the co-operation of the heads of schools and colleges, who are charged with the education of the young and who can introduce needed reforms in their system of instruction; of the clergy, who can render invaluable aid through the moral training of young men; of jurists, who can intelligently frame legal measures of protection; of sociologists, who can render material service in remedying social conditions which favor the spread of these diseases; of philanthropists and of public-spirited men generally.

In my opinion, this socio-sanitary work of prophylaxis should be undertaken by a special society, composed of these influential elements and known as the "Society of Sanitary and Moral Prophylaxis." It should be a permanent organization, which should exert a continuous active force in dealing with an evil which has so many elements of vitality and permanence. This society should be a center for the diffusion of enlightenment—a medium of communication between the profession and the public. Individual members and committees of the medical profession may make elaborate reports showing the extensive prevalence of venereal diseases, their menace to the public health and their danger as a social peril, but they never reach the public, which needs this enlightenment, and therefore they do little good. The chief obstacle to this enlightenment comes from the atavistic impregnation of the public mind with the idea that a knowledge of the reproductive system and of its diseases is shameful, and the first effort of this society should be to break down this solid wall of opposition to the diffusion of such knowledge. Experience shows that in dealing with sanitary, as well as with social problems, difficulties which were apparently insurmountable disappear when causes and conditions are carefully studied and when earnest and intelligent efforts are made to combat them.

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WHAT IS THE RIGHT ATTITUDE OF THE MEDICAL PROFESSION TOWARD THE SOCIAL EVIL? *

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The "social evil" is a euphemism for what F. H. Gerrish better characterizes as "mercenary sexual debauchery." The marriage of one man to one wife,[1] by which the man and the woman are henceforth no longer twain, but one flesh, constitutes the very foundation of all true social progress; this is the unit which in the aggregate forms a social fabric in which right rules, virtue is honored and God is revered, and against which no corruptive force can ever prevail.

Prostitution is unlawful sexual commerce, in which the prostitutes, male and female, while united in the sight of God, yet seek to avoid those responsibilities of perpetual mutual care and service, the necessary concomitants of the first commandment ever given to man and associated with blessing: "Be fruitful and multiply and replenish the earth." There can result from this unnatural bond no increment by which the state is built up, its traditions fostered, and its perpetuity guaranteed; this is the great moral disease ever at work on all sides seeking to undermine all those humane institutions which the experience of the ages has coupled with the good of our race.

As Prince A. Morrow testifies, there would be no question as to a social evil and venereal diseases were it not for prostitution; it is, therefore, with this root evil that we, as medical men, desire to deal to-day. I need not dwell on the facts of the disease; we all know them, for wherever we may live the foul river has its tributaries running by our door, and year by year we see thousands of young men and women (Morrow estimates 450,000 boys in our country alone) who began life with the expectation of pure living and high ideals, take the fatal plunge into the moral sewer, losing what they can never regain, even by the most careful living or conduct consistent with the standards of the world. The woman, once stigmatized in this way, hides in shame, a voluntary exile in certain haunts of seclusion; she struggles on leading a life of shame for a few short years (the average length of life of a prostitute is about six years), and then sinks, often a hopeless syphilitic and perhaps a drunkard, ending her days by suicide or with tuberculosis or in general decrepitude in an almshouse. The man, on the contrary, by reason of the double standard of morals adopted by a cowardly society, conceals his pollution, puts on a brazen face, goes freely into society, and often ends by marrying some pure girl, only to deposit in her lap—as a wedding gift from the first wife, the prostitute (*"le cadeau de noces que les courtisanes déposaient dans le corbeilles des jeunes épousées"*)— the seeds of the foul disease which makes her innocent wifehood a source of pain and misery, and often renders motherhood impossible or makes the child, if, indeed, one ever sees the light, a wizened monster, more fit for the grave than for sweet, happy, human relationships. The prostitute takes a poetic revenge, and by the disease she gives her paramour forever seals the fountain of nature and restrains her supplanter from acting beyond her own (the prostitute's) sphere, even though she be a thousand times legalized as wife by church and court.

I need not remind those who know so well the problems of public hygiene, of the trite fact that this has been the burning question of the ages, and that it was sexual immorality which ate the heart out of the decadent nations which have preceded us. Egypt, Assyria, Greece, Rome and the modern Latin nations are all by-words for profligacy, and before their collapse lust ran riot, until they fell a mass of corruption, destined to rise no more. Germany of to-day is saturated with this vice, and in spite of her present fair showing before the nations, owing to the splendid mentality and the law-abiding character of her citizens, she must, unless she reforms in this matter within a few generations, inevitably follow those who have walked the downward path into the pit before her. England and America are to-day honeycombed with this vice, which flaunts itself at every turn in every town, at all our frequented resorts, and nowhere more noticeably than in the very city where we now sojourn.

I need not dwell on this aspect of the case, for it is everywhere acknowledged, and nowhere more forcibly presented than in Morrow's recent plea.[2]

Responsibility? Who can escape it. Every intelligent adult man and woman has a real, an unavoidable responsibility touching this question, but most heavily does it rest on the shoulders of the three liberal professions—on the minister, the lawyer and the physician. On this tripod, whose members are in constant living contact with all ranks of society, rests the welfare of our body politic, and should we prove recreant to our trust where is the hope for the body at large? The minister and the priest deal with man as a responsible agent in his relationship to God, preaching first the law which says "Thou shalt not," and then the loving message of grace ever crying, "Turn ye, turn ye, why will ye die?" The lawyer who sees man differentiated into his complex relationships, deals with the great fundamental principle of the Justinian code, *"alterum non lædere"* (Thou shalt do thy neighbor no harm), in all its ramifications; and it is his province by legislative and civil process to promote virtue in the state, as the tried foundation-stone which is the essence of a good government and the sole basis of its perpetuity. It is the manifest province of the physician to prevent and to hinder the spread of the protean diseases which harrass or shorten life.

These three professions, to a superficial view entirely distinct, are yet closely united by a common bond in one aim, namely, the upholding of public morals; and not one individual member of them can escape the moral obligation which rests on him in virtue of his choice of this as a means of livelihood. The very term "liberal" advertises the fact that he who claims it stands in relations of tender sympathy and helpful interest to his fellow-men, to whom his services belong for the establishment of good and for the relief of the oppressed.

Some have ventured to question this affiliation of morals with medicine, forgetful of the fact that the very diploma which the licentiate holds proclaims him to be of good moral character. Eliminate the moral side of our calling and it is no longer a calling, but a trade.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Gen., 2:24.

[2] Medical News, June 4, 1904.

But why should we be at further trouble than to treat our patients as they come to us to be healed? Why take any active steps in these matters? I once thought long ago, when I was a medical student, that a physician's chief business was to cure diseases, but a quarter of a century of experience has shown me that the highest and noblest practice of our art is to prevent them. What a pitiable showing does the history of all the recoveries by treatment from tuberculosis, malaria, typhoid fever, yellow fever, etc., make when we think of what might be done by prevention through the enforcement of personal, domestic, municipal, state and national hygienic laws, enforcing the knowledge we already possess. It is not too much to say that these affections could be almost wiped out in a generation, did not ignorance and politics—to which some even think of appealing for the relief of venereal disease—hinder.

There are three possible attitudes in relation to the 'Social Evil":

1. Indifference.
2. Government control.
3. An active personal crusade, inspired by a profound sense of personal responsibility.

Indifference has been the attitude of the past; I trust that this day sounds its death knell. I would simply impress on you the fact that we have been living in this particular period for many years, and if you observe in your midst any appalling increase in loss of honor and decadence of morality among our young people, it is due to this régime of indifference, and not to a system of any kind which has been on trial. Please note emphatically that indifference, and indifference alone, has been tried and found wanting.

The outcome of indifference has been sin and disease running riot; a system of blackmail debauching our police service; and the corruption of the whole body politic.

Governmental control, the second of these attitudes, is a question before us for consideration. It involves the acceptance by the body politic of a situation by means of which prostitution receives legal status as a recognized (honorable, shall I say?) and duly protected calling, coupled with certain restrictions. What does such an attitude as this involve on the part of our government?

1. Licensing prostitution.
2. Taxation of prostitutes, bawdy houses, or both.
3. Segregation of prostitutes in certain known quarters.
4. A new department in our municipal government, with a system of police and medical inspection and espionage.
5. The right of enforced examination and commitment to lock hospitals when disease is found.

Note that all these impositions, strange to say, refer to women alone as the sole offenders and sources of disease.

Let us consider the great and fundamental question of this inquiry, namely, Has the law a right to sanction vice for any reason whatever? We are, unfortunately, so little trained in ethics, or perhaps better, morals, that many of us may be at first puzzled to answer this question. I believe that if I were to ask a hundred people consecutively, What is the law? the reply of the great majority would be that the law is simply a statutory declaration of the will of the majority. "May the law," then, I ask, "sanction evil, if the majority so rules?" This is the real crux of the situation, and it is no trifling matter that we should hold correct views on this head, for accordingly as the millions of American citizens answer this question, must our country stand or fall. Who are better fitted to answer this question than some of the greatest minds of which the Anglo-Saxon race has ever boasted?

I gather my extracts from Ritter's book on "Moral Law and Civil Law Parts of the Same Thing." Sheldon Amos, in his "Systematic View of the Science of Jurisprudence," says "the purpose of the law is to fortify and to maintain the public morality." Bishop, for thirty years recognized in the United States as a standard authority on criminal law, says: "Morality, religion and education are the three great pillars of the state and the substance of all private good. A community from which they are banished represents more than the gloom of the original chaos. Therefore, they should be objects of primary regard by the law." "Further, the common law practically and fully cherishes the public morals, and it punishes as a crime every act which it deems sufficiently evil and directly tending to impair the public morals." What, then, is morality? "Morality requires a man to treat his neighbor honestly and fairly; it can compel him to do so and punish him if he does not. Religion is a matter of belief; morality is a matter of conduct." "At common law," says Lieber on Penal Law, "indictability and immorality are convertable terms." In Well's "Pollock on Torts" he says: "All positive law presupposes a moral principle." Amos, quoted above, says that "the law as a mode of benevolent guidance and aid, characteristically stands forth as the ever-present and incarnate witness of that ultimate morality of which it is at best no more than the symbol and the counterpart." Furthermore, "morality and moral character are exactly the same in legal contemplation as are they when viewed from any other standpoint."

To go back to another very old authority: "By the law is the knowledge of sin." The law itself must be a righteous standard, and if it deflects at all, the reign of evil has begun, for there is no longer any standard by which sin can be proved. If that which should be the instrument to convict of sin becomes sin itself, to what, then, are we to appeal? Such are the opinions of eminent authorities whom none can gainsay.

As for myself, and I trust I speak for all in this professedly Christian land, I would declare: "We can not consent to sanction of evil that good may come from it." If appealed to to be practical, we answer that we can not afford to be "practical" at the sacrifice of principle; we will fight evil wherever we see it, and under all circumstances we will oppose the debasement of the public standards of right and morality. This we will do in entire confidence that in spite of all appearance the right so upheld will in the end prove victorious. Pure laws are the heritage we would leave to our generations yet unborn, and let not those who are caught in a final cataclysm of evil, point back to this day of boasted civilization as the memorable era when the public standards of right were first debased.

Does the legalization of vice bringing even the majority of the prostitutes under control and by lessening disease in the community afford the protection which it promises? Any statistical inquiry, drawn from foreign sources, for purposes of comparison, is valueless, since it serves only to contrast an era of indifference with an era of regulation. For the present status of the question in Paris, I would refer to a brief but admirably clear presentation of the subject by Frederic Griffith of New York.[3]

The result of legalizing prostitution in America, for I trust I speak for Canada as well as for the United States, would be to place the whole burden of proof that unrestrained sexual commerce is wrong in the sight of God and man, on the chaste men and women, who teach their boys and girls that purity is of heaven, and is their best heritage in life, and that uncleanness, born of hell, is their worst foe. Of what avail is all my teaching when prostitution is legalized and the leading minds of our country declare that the gratification of lust is venial; for the sanction of the law makes that which it ordains presumptively right. Moral purity is practically unknown and held in contempt in Germany as well as in France, where the term *pucelle* expresses the contempt felt for chastity. Shall we come to this!

If we legalize this infamous business, where shall we look to recruit the ever-fading ranks of these poor creatures as they die yearly by the tens of thousands? Which of the little girls of our land shall we designate for this traffic? Mark their sweet innocence to-day as they run about in our streets and parks, prattling and playing, ever busy about nothing, and earth's only memento of the angels in their guilelessness. Which of them shall we snatch as they approach maturity to supply the foul mart of the insatiable cravings of lust? Perish the thought. Again, we surely would not allow the daughters of our rich men to enter our legalized brothels. The poor man must suffer and be robbed of the flower of his family—the poor man who, Jacob Riis tells us, has no appeal beyond the policeman on the beat and practically no rights in our courts. What can he do against the lavish use of money by the rich man's son and the brothel keeper's oath and the policeman? Sherman said "War is hell," but war is a sweet, a noble and a choice calling compared with a life in this pit of iniquity which some have proposed to open in our land. The only way out of the difficulty is to assert that the young girls naturally love this debauched life, but before I believe that you will have to rob me of my years of experience with women who, for the most part, began by being seduced.

The most specious claim yet made has been that the legalization of vice is but a step toward its abolition. What does experience in regard to this teach? Where has this ever been done? Tell me, too, why, after more than a century of boasted national progress we should now take a step backward in order that we may go forward?

Consider for a moment, gentlemen, what effect the legalization of vice will have on the medical profession. The necessity for examining women licensed to carry on their business will create in our midst a vile and an odious specialty, akin and closely allied to the professional abortionist; degrading to our profession and justly bringing it into contempt by making it thus pander to vice. I surely need only to suggest and not to dwell on this insufferable degradation. Read Griffith's article, and see how some of the Paris medical men are employed with two tables examining prostitutes at the rate of about 450 an hour! What a lowering of our standards when we come to that! What an occupation for the man who starts out full of the hope of accomplishing great things for humanity armed with a diploma certifying to his "good moral character."

Finally, I come to the third attitude toward prostitution, namely, a moral crusade sustained by an intense sense of personal responsibility. What does this mean? It means that we shall recognize our individual responsibility toward all whom we can in any way hope to influence, toward our own children first, and then toward our patients, laboring in season and out of season to inculcate good morals, not omitting to warn them that the penalty of sin is death, the worst of all kinds of death—a living death to all moral sense.

This is the difficult path, for, instead of shifting the responsibility on to others by voting to pass a law, it places the burden where it belongs—right on the shoulders of every man and woman in this country. This and this alone is the course of that "eternal vigilance which is the price of liberty."

If as sincere Christian men you will take this course, then I have great hopes for the future; if you adopt any other course as more "practical," my hope is gone.

SYPHILIS AS A DISEASE INNOCENTLY ACQUIRED.*

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Syphilis is not necessarily a venereal disease. Syphilis is one of the great diseases affecting the human race, and if its entire clinical history could be perfectly known, for ages past, it would be recognized that this one poison had caused greater damage and misery and more decided race degeneration than any other one malady, except tuberculosis. And yet, thus far, except in a few isolated localities, there has been no general and intelligent attempt to restrict its ravages.

The common occurrence of syphilis as a result of unlawful sexual intercourse, and its inclusion among venereal diseases in so many text-books of late years, are undoubtedly the cause of much of the feeling existing in regard to it as a disease not to be mentioned in good society, and one whose recognition should be tabooed. It has been ignored through ignorance and neglected through negligence.

In studying the older literature of syphilis, it is seen that often quite another view was taken. It is often described as an epidemic disease, which spread through families and communities, in the ordinary run of domestic, industrial and professional life; as, for instance, by kissing, nursing, hand feeding, eating utensils, etc.; likewise in factories, by gas-blowing, weaving, etc.; also by cupping and leeching; while it was also recognized that the disease might be communicated in sexual intercourse, in families.

But with the spread of civilization and the luxury and license attending it, and especially with the growth of cities and the increased use of intoxicants, syphilis has come to be more and more diffused by illicit intercourse, and to be regarded wholly as a venereal disease; and by some it is considered as a just penalty for sexual transgressions, much to the detriment of its proper recognition as a contagious malady which should be guarded against by proper legal restrictions.

Syphilis is undoubtedly a disease of cities, where prostitution abounds, and it has been estimated that there are no less than 50,000 new cases of syphilitic infection in New York each year. But there is abundant evidence of its occurrence everywhere throughout this country, it is carried from the cities to the rural districts, and there often transmitted in a wholly innocent manner. These cases sometimes go unrecognized for long periods, because no venereal element is found, or exists, and the diagnosis is not made until serious lesions lead the patient to come or to be sent to the city for medical aid; of this innumerable instances could be cited.

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[3] New York Med. Record, April 23, 1904.

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Owing to the increase of syphilis acquired by illicit venereal contact, the proportion of cases of innocent syphilis is undoubtedly less than it was a hundred or more years ago, and the relative number is also probably decreased by the better knowledge of the contagious nature of the disease and by the better and more thorough treatment of later years. But everyone occupied at all seriously with syphilis will testify that there yet occur in the cities and in the country numberless cases where it is acquired in as perfectly innocent a manner as are smallpox, measles and other contagious diseases, which are now under the control of health boards.

Time would fail to enter at all fully either on the clinical and historical proof of the ravages of syphilis as an innocent disease, or on the efforts which have been spasmodically put forth here and there to control the spread of the disease by legal measures. Nor is the latter necessary, for legal action will certainly follow when once the public is thoroughly convinced that there is danger which may be thus avoided. A brief presentation of some of the established facts regarding its innocent acquirement may help make the matter plain to those who have not hitherto given it particular attention. In doing so, I must in a measure repeat what I have previously written on the subject,[1] and even some things which I said in a paper on "Syphilis as a Non-Venereal Disease," before the Section on Cutaneous Medicine and Surgery of the Association, four years ago, in this very city.

PREVALENCE OF SYPHILIS.

It is pretty well established that syphilis has existed on the earth from time immemorial, and many find in the Bible abundant allusions to the disease, while bones of ancient times, which have been exhumed, give evidence of its long existence. Records in Chinese literature also point back to its presence at least 2000 years B. C.

All of our real knowledge of syphilis, however, dates back about 400 years, when the followers of Columbus were supposed to have brought the disease to Europe from the western lands, although it has been contended that there is abundant evidence, from exhumed bones, of its having been present there long before that time.

However, soon after 1494, the disease spread with great rapidity and virulence, after the invasion of Italy by Charles VIII of France, until a large portion of Europe showed signs of the disease, and within 100 years there were published very many accounts where syphilis affected large communities, in an epidemic manner, through innocent channels, relating to domestic or industrial life. The real character of the disease was unknown, and the occurrences were reported under various names, but they have been identified as unmistakably syphilis.

With greater enlightenment these extensive infections by the disease have gradually diminished, and now rarely, if ever, occur; although there have been many groups of cases of infection by vaccination, circumcision, eustachian catheterization, etc., even up to the present time.

In Russia the disease is stated to have become so prevalent that in some villages at least one-quarter of the inhabitants are affected, and all writers agree that this has happened largely through family life, as prostitution is almost unknown in the villages.

In all countries of Europe writers testify to the very widespread existence of syphilis, both in the cities and in the country districts. In Portugal, Ferguson stated in 1812 that a large share of the population had become infected through long neglect.

In Asia and some parts of Africa the disease is very prevalent, but now apparently of a rather mild form, owing to the protection afforded by previous race infection; but syphilis affects very severely outsiders who become there affected. In Shanghai, syphilis formed 19 per cent. of all cases in the general hospital, 16 per cent. in Hongkong, and almost 30 per cent. in Tientsin.

It is difficult to secure any reliable data in regard to the prevalence of this malady in the United States, but in the statistics of general skin diseases, gathered by the American Dermatological Association, syphilis gave a percentage of 11.5, in 300,000 cases. As has been stated,, it was estimated by Dr. Sturgis, some years ago, that there were 50,000 cases of new infection in New York City each year.

Syphilis, an intensely contagious disease in certain stages, being so widely and freely distributed everywhere, let us briefly consider the three lines along which innocent syphilitic infection may take place: 1, Marital syphilis; 2, hereditary syphilis; and 3, innocent extragenital syphilis.

MARITAL SYPHILIS.

This mode of infection stands prominent in connection with the innocent acquiring of syphilis, and all observers testify that wives suffer very frequently from the sins their husbands committed before or after marriage.

Fournier of Paris found that fully 25 per cent. of all syphilitic women, seen by him in private practice, had contracted the disease innocently and undeservedly, while of the married women the disease was unmistakably traced to the husband in 75 per cent. of the cases.

In my own private practice, I found that in fully 50 per cent. of the women with syphilis the disease was acquired in a perfectly innocent manner, while among married women, the percentage of innocent infection was quite 85 per cent. Is it not time that the law, which has done so much to stamp out smallpox, yellow fever and many infectious and contagious diseases, should attempt something for these innocent sufferers? But the subject of hereditary syphilis presents, if possible, a yet darker picture.

HEREDITARY SYPHILIS.

The limits of this paper will permit of only the briefest mention of a few of the facts pertaining to hereditary syphilis, about which so much has been written. It is well known that syphilis is the constant cause of abortions, and that it also produces sterility, both in the male and in the female. It is also well known that the mortality of children born of syphilitic parents is very great. At the hospital in Moscow, Russia, from 1860 to 1870, there were 2,002 such births and 1,425 deaths; that is, 71 per cent. of children born there of syphilitic parents died.

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[1] Bulkley: Syphilis in the Innocent (*Syphilis insontium*) Clinically and Historically Considered, with a Plan for the Legal Control of the Disease, New York, Bailey and Fairchild, 1894; also THE JOURNAL A. M. A., April 6, 1901.

If, therefore, the effects of syphilis be considered simply in regard to the loss of life to the state, there are ample reasons for the introduction of legal measures to check the spread of the malady. But the harm from the disease goes still farther in inherited syphilis.

Tarnowsky tells of three families of syphilitic parents in which there were 22 births. Of these came only one healthy adult person. Of 13 who survived some years, 8 were incapable of self-support, from mental and physical defects, and the other 5 were weak, nervous, and totally unfit for procreation; this occurred in intelligent families, with no other cause than syphilis for these disastrous results. He also quotes from Tchistiakow the case of a man, who had severe syphilis in early life, which destroyed the palate, of whose nine children two were idiots, one was deaf and dumb and one died in infancy. Many similar illustrations of the direful effects of hereditary syphilis could be given from literature and personal experience. What syphilis has accomplished toward race degeneration will never be known, but we do know that it has at times decimated our American Indian tribes, and has wrought unspeakable havoc in Russia, in the Hawaiian Islands and elsewhere.

EXTRAGENITAL SYPHILIS.

The accidental infection by syphilis in extragenital regions is a most interesting field of study, and many hundred observers have reported thousands of cases relating to accidental chancres in every part of the body; more than 200 cases of this kind have fallen under my personal observation and care. This subject also can be but briefly touched on here, but an outline of the circumstances under which it has repeatedly happened may help to appreciate the gravity of the danger and its bearings on the health of the community.

Among 9,058 recorded cases of extragenital chancre, collected from literature, there were 1,863 resulting from vaccination, 745 from cupping and phlebotomy, 179 from circumcision, and 82 from tattooing. Excluding these, the largest number of extragenital chancres, 1,810, were located on the lips, 1,148 on the breast, 734 in the buccal cavity, 432 on the fingers and hands, 372 about the eye, 307 on the tonsils, and many others on different parts of the body.

There are three general lines in which syphilis may be thus innocently acquired: 1, In domestic and industrial life; 2, in the nourishment and care of children; and 3, in professional pursuits in the care of the sick.

Under the first of these we find instances of the innocent transmission of syphilis finally classified under almost fifty groups, relating to almost every possible phase and aspect of domestic and industrial life. Not only has syphilis actually been given repeatedly by kissing, biting, scratching and personal contact, but it has in numberless instances been transferred by spoons, knives, forks, cups and glasses, as also by means of tobacco pipes, cigars, cigarettes, and even by troches and candy, passed from mouth to mouth; also by underclothing, masks, plasters, bandages, lint, towels, sponges, combs, toothbrushes, syringes, sick chairs, etc.

Among those who have acquired it innocently in industrial life may be mentioned glass-blowers, assayers, weavers, musicians, conductors (by whistles), cooks, furriers, upholsterers, shoemakers and servants.

The second class, relating to syphilis acquired through the nutrition or care of children, includes literally thousands of instances, often extending in long series of cases, where syphilitic infants have infected nurses, and they in turn have infected other children; or where syphilitic nurses have given the disease to infants under their charge. The very day of writing this a child 2 years old was brought to my office with an unmistakable eruption of macular syphilis. On the prepuce was a large, hard chancre, and the infection was traced probably to a nurse girl who had been discharged about a month previously, as she had proved to be a loose character and was pregnant; the father and mother were seen and were absolutely free from syphilis. Many instances are on record of infection by means of nursing-bottles, artificial teats, etc.

In the third class, relating to professional body service in the case of the sick, we find vast numbers of instances where: 1, The operator is the victim; 2, the operator, having syphilis gives it to another; and 3, where the operator is the means of conveying syphilis from one patient to another.

Under the first class we find hundreds of instances where physicians, surgeons, accoucheurs, midwives, nurses, breast-drawers and wound suckers have acquired the disease thus innocently I have had over two dozen physicians under my care who were innocently infected.

In the second class there are many records of those who, having syphilis, have communicated it to others by operations and otherwise, as in circumcision, tattooing, breast-drawing, vaccination, etc.

In the third class we find a sad array of cases where syphilis has been conveyed from one patient to others, by vaccination, skin-grafting, wet cupping, tattooing, by the use of the eustachian catheter, through dental instruments, etc.

DANGERS OF SYPHILIS.

From what has been presented it is readily seen that the opening sentence is fully justified, namely, that syphilis is not necessarily a venereal disease. Indeed, it is only accidentally such, owing to the delicate character of the tissues about the genital organs, and the readiness with which abrasions occur in that region, and also the ease with which the virus is retained there. Syphilis is simply a contagious disease, and wherever its poison can reach an absorbent vessel, infection is sure to take place, whether the person is innocent or guilty. Indeed, the only wonder is that more persons do not contract the disease, in view of the intense contagiousness of the early mucous lesions and the recklessness with which certain patients with masses of mucous patches in the mouth will often mix freely in society, unrestrained, as every one having much to do with syphilis will testify. The only explanation is that the poison does not chance to find an abraided surface to enter.

This is not the place to enter into a discussion of the nature of the syphilitic virus or its mode of action on the system; suffice to recognize that it is communicated to healthy individuals constantly, both by immediate contact and by mediate objects, in hundreds of unexpected manners. Not only does the trustful wife and the innocent maiden acquire the loathsome disease from a faithless husband or lover, but the honored physician or nurse, while ministering to the sick may acquire a disease which often incapacitates them from duty, for a season. Nor is any one certain of not being infected innocently, because, as already mentioned, instances are constantly met with where contagion occurs in most unexpected manners; for it is to be remembered that the virus deposited on various objects may retain its inoculability for an indefinite period.

LEGAL CONTROL OF SYPHILIS.

In view of what has been said, even so briefly, which could be magnified many fold by hundreds of observers, is it not strange that no systematic attempt has been made by health authorities to obtain the proper control of this disease which is inflicting so great a damage on the community?

As already intimated, the reason is found in the fact that syphilis is so thoroughly associated in the minds of the profession and of the laity with venereal transgressions, that there is a moral repulsion against any measures looking toward its repression. So long as syphilis is regarded solely as a venereal disease, it will be extremely difficult to obtain adequate legislation for its control. But, when the medical profession and the laity are thoroughly awake to realize the relative frequency and danger of its innocent transmission, there will be little difficulty in solving the problem.

The matter of legal protection against syphilis has nothing to do with the subject of prostitution. The fact that the syphilis is frequently acquired through prostitutes should be no bar to the community protecting itself against the disease. The question is not in regard to "legalizing prostitution," nor of inspecting, licensing or legalizing the "social evil," nor of protecting those engaged in it. It is to be approached from a higher ground, and the effort should be made to have some restriction placed on a disease which is dangerous and communicable, and which continually attacks many in a wholly innocent and unexpected manner.

That the spread of syphilis can be checked, to a greater or lesser degree, by proper measures, is evident, both from experience and science. In the many epidemics of syphilis which have occurred in innocent manners, in time past, the disease has been checked when its real nature was recognized and proper precautions instituted. Scientifically, we know that the poison can not develop *de novo*, but that it is always communicated from one person to another. We also know that after a certain period it ceases to be virulently contagious. If now, no new syphilis is introduced into a community, and if means can be devised whereby those already diseased do not expose others, until that safe period is passed, the malady will cease to exist. To endeavor to accomplish this would be the duty of the health boards, when once the disease was placed under their control.

All are fully acquainted with the incalculable benefits which have accrued to the public by the powers vested in boards of health, not only in a general way, but also in controlling other contagious diseases, such as smallpox, scarlatina, diphtheria, yellow fever; why should not syphilis be placed among them and protection be afforded to the innocent? Syphilis counts its victims, innocent and guilty by thousands, where other diseases count by hundreds.

There should be no difference of opinion about the desirability of placing syphilis under some restraint. I can not refrain from repeating the suggestion which I have made elsewhere and on another occasion. The first step, I believe, is to recognize and place syphilis among other contagious diseases, under the control of health boards, and as public sentiment is aroused to the advantage of this proceeding, it will be easier to advance step by step in the restraint of the disease. If it were placed on the same footing as smallpox, scarlatina and diphtheria, and if it were made a misdemeanor to communicate syphilis wittingly, a great step would have been taken toward diminishing the frequency of the disease and consequently its innocent infection.

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SYPHILIS AFFECTING INFANT MORTALITY.*

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To Fournier, Morrow, Carpenter, and Abt, and many others, we are indebted for many important facts bearing on fetal and infantile syphilis, and to these authorities I wish to give credit for much valuable information.

Approaching the subject from the standpoint of either the obstetrician or the pediatrist, we are appalled at the great influence of syphilis on infant mortality.

Taking into consideration all cases of premature delivery, prior to or after the third month, next to criminality, syphilis heads the list as a cause of abortion and miscarriage. From the standpoint of the pediatrist, the number of cases of syphilis in infancy and childhood will form but a small percentage of the total number of cases seen. The mortality in syphilitic children, however, is as great, if not greater, than in any other disease.

The method of conveyance of syphilis to offspring has been much discussed, especially as to the relative responsibility of each parent and as to how the prognosis is influenced by paternal, maternal or mixed source of infection. Infection may be transmitted by the father alone, through the medium of the spermatozoa; from the mother, the father remaining healthy, or it may be a mixed infection from both parents.

With Carpenter, we believe that Colles' law can be explained by the existence of a syphilitic toxin, transmitted from the syphilitic fetus, through the placental circulation. The mother is thus rendered immune against infection by the mucous patches in the child's mouth while they are capable of infecting a healthy wet nurse. Against this theory of acquired immunity without active syphilis is the statement by Morrow that well-authenticated cases are on record where women who have given birth to syphilitic children have afterward acquired the disease.

On the virulence of the disease in either or both parents at the time of conception will depend the severity of infection of the child. It is a fact, noted by different observers, that in the course of a case of syphilis, for instance during a short intermission in treatment, an infected parent may beget a syphilitic child and during treatment a healthy one. Fournier has reported a case in which a syphilitic child was born twenty years after the primary lesion in the parent, healthy children having been born in the interim.

Syphilis, unfortunately, does not affect a man's procreative powers or his sexual desire, nor does syphilis in the mother interfere with her abilities to conceive. History shows that syphilitic women conceive and abort in rapid succession.

In all walks of life syphilis, when one parent alone is affected, is much more common in the father, and it is possible for him to beget a healthy child, also for him to beget a syphilitic child without primarily infecting the mother. The chances, however, of a child's escaping infection when the mother is syphilitic and the father healthy are very small, indeed.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Fournier, quoted by Morrow, observed 200 cases in private practice, many of whom had been subjected to prolonged treatment before marriage. In these cases there were 403 pregnancies, of which 288 infants survived, while 115 either died *in utero* or a short time after birth. This gives a mortality in these cases of paternal infection of 28 per cent., which is a startling percentage when it is considered that they might all be considered favorable cases, having been subjected to treatment for varying lengths of time before marriage.

As to the statistics of maternal heredity, the same observer found that in 85 pregnancies, where the mother alone was syphilitic, 58 terminated by abortion, stillbirth or moribund children, while 27 terminated in children who survived—a mortality of 67 per cent. Morrow gives also the Lourcine Hospital statistics, which show that in 167 pregnancies coincident with maternal syphilis 145 terminated fatally, while in 22 only did the child survive—a mortality of nearly 88 per cent. The statistics of La Pileur give 414 births, with 295 deaths —a mortality of 71 per cent.

A mother contracting syphilis after conception, when both parents were healthy, may give birth to a healthy child. If the infection is prior to the third month, when there is no placental attachment, and the specific treatment is begun at once, a healthy child may be born. If an infection occurs after the seventh month the child may escape, as the incubation period for the initial lesion and the secondary manifestations may not have elapsed before the birth of the child.

In mixed heredity Fournier gives a mortality of 68 per cent. in 1,500 cases, which he believes would be increased to at least 86 per cent. had all hospital cases been considered.

Fournier states: "It is by thousands we can produce cases where syphilis has killed one, two, three, four, five or more infants in the same family. Numbers of cases can be cited in which the quotient of mortality rises higher and higher in certain families."

Summarizing the influence of syphilis on pregnancy, statistics show a fetal mortality in paternal heredity, under most favorable circumstances, of 28 per cent; in maternal heredity, according to different observers, of 67 per cent., 86 per cent. and 71 per cent. In mixed heredity the mortality may range from 68 per cent. to 86 per cent.

From the standpoint of the pediatrist, what is left for the syphilitic child? What organ is exempt from its ravages? When can it be said that the child is beyond the possibilities of danger?

When we consider the statistics of Morrow, that one-third of all children born syphilitic die before they reach the age of 6 months, those responsible for this symposium need no defense.

To describe the manifold lesions which may develop in a child born syphilitic is not within the scope of this paper. Suffice it to say that not a tissue nor organ in the body of the little one is exempt. It may be born apparently healthy to develop symptoms later, or it may have every evidence of heredity at the time of birth.

An interesting phase of this subject of infantile syphilis has recently been brought to our attention in this country by Abt, who called into prominence the writ of Fournier describing syphilis *hereditaria tarda.* This is the late manifestation of syphilis in a child from 3 years to puberty who has previously shown no symptoms. Abt speaks of two factions, one claiming that these cases are authentic, the other that they are really cases of hereditary syphilis in which the early symptoms were so slight as to escape notice. I would rather tend to the latter view.

Hutchinson's triad of symptoms characteristic of congenital syphilis are interstitial keratitis, labyrinthine deafness and deformity of the upper incisor teeth.

Appreciating, then, the insidiousness of the disease, the impossibility of giving a clean bill of health to any child born of syphilitic parents, we believe there is no disease, not excepting tuberculosis, which slays so many children.

With Morrow we can say: "We may look on syphilis not only as a factor in depopulation, but a cause of degeneration of the race. It is the quality of expansiveness, this capacity of morbid irradiation through family and social life, that gives to syphilis its superior significance as a social danger."

[Editor's Note: The Symposium on Venereal Diseases and Prophylaxis will be continued next week and will be followed by the discussion.]

ACUTE YELLOW ATROPHY OF THE LIVER.

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AND

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CHICAGO.

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During the past few years, there have been studied either tissues or organs from four cases of acute yellow atrophy of the liver, in the pathological laboratories of the University of Chicago and Rush Medical College, and on account of the relative infrequence of this disease it has seemed advisable to place the records of these cases in the literature where they may be available for investigators of this condition, even though not all of our reports can be as complete as we could desire. Osler's estimate that there are 250 cases on record up to 1894 inclusive, 50 of these being added by Hunter from 1880 to 1894, is possibly based on the estimate of Thierfelder in 1878 that there were 200 cases in the literature at that time. If we accept this latter as true there are at least 450 on record at the present time, as shown by the Index Medicus.[1] Undoubtedly the disease is somewhat more frequent than might be inferred from these figures, for the three cases that have occurred in our own autopsies have been found in a series of something less than 1,500 autopsies recorded in our laboratories. Nearly all recent writers refer to Osler's statement that he has not met with a single case of acute yellow atrophy, usually with some astonishment. Our cases are as follows:

Case 1.—This body was examined in the Cook County Hospital, July 26, 1898, by Dr. Hektoen. Unfortunately, at this time the following brief history is all that can be obtained, the hospital records having disappeared:

History.—The patient was a young woman, about 20 years of age, unmarried, who was in the hospital helping about the wards during the latter months of her pregnancy, being admitted as she had no place of refuge. In the sixth month of her pregnancy, which up to that time had been [illegible] the woman being of exceptionally good physical d[illegible] she became sick with a slight jaundice, headache, and other symptoms resembling those of a catarrhal jaundice. Three days later she miscarried, no record of the conditions at this time being available. A few days later she developed some temperature and became comatose. A physical examination at that time showed a distinct diminution in the area of liver dullness, and the jaundice was extreme. The urine showed both leucin and tyrosin crystals, in addition to bile, albumin and casts. The coma continued for eighteen hours, without convulsions or delirium, terminating after that time in death.

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[1] Best.

AUTOPSY.

The autopsy report is as follows:

External Appearance.—The body is well nourished and developed, showing the usual amount of posterior lividity, also some small subcutaneous hemorrhages over the left leg. The entire subcutaneous surface is saffron yellow.

Body Cavities.—*Abdominal, pleural and pericardial cavities* show no changes.

Mouth and Respiratory Tract.—The tongue is covered with a brownish crust, and the pharynx, larynx and trachea show no changes. Thyroid weighs 50 grams, being uniformly enlarged and soft. The thymus is absent. The lungs crepitate everywhere, and appear somewhat distended. There are small hemorrhages beneath the pleura and some of them have extended a centimeter or so into the lung substance. The lower lobes, especially, are bloody. The peribronchial lymph glands show no changes.

Heart.—The heart weighed 240 grams. The pericardium shows numerous small extravasations of blood, especially over the posterior surface of the upper part of the left ventricle. In the right heart are yellow goose-fat clots. The endocardium is normal, but there are small extravasations beneath it in the left ventricle. The myocardium is rather flabby, opaque, and loose in texture. In the beginning of the aorta and in the coronaries are a few small yellowish streaks. There is an extravasation of blood in the periaortic connective tissue of the posterior mediastinum.

Kidneys.—The kidneys together weigh 320 grams. The capsule is free, surface smooth, and stellate veins injected. On the cut surface the parenchyma is yellow and the cortical markings indistinct. In the mucous membrane of the pelvis are small hemorrhages. The right pelvis and ureter are somewhat dilated, the ureter to the size of a finger. There is no obstruction to the outflow from the bladder or anywhere in the course of the ureter.

Pelvic Organs.—The uterus fills the true pelvis. Externally there are no changes. There is no exudate on any part of the pelvic peritoneum. The muscular wall of the uterus is soft, the mucosa rough and reddish, and covered with shreds. In the posterior part of the fundus are layers of coagulated blood. The mucosa of the vagina is normal.

Gastrointestinal Tract.—Esophagus is normal. Stomach contains a blackish, semi-solid substance; the mucosa is yellowish and covered with a viscid mucus in places, otherwise there are no changes. The small intestine shows a slight swelling of Peyer's patches. The large intestine is normal, but contains great quantities of clay-colored fecal matter.

Liver.—This appeared much smaller than normal when *in situ*, and had fallen away from the diaphragm, lying in a flabby mass in the posterior part of the cavity. There are no adhesions about it. Total weight, 1,020 grams. The surface is smooth, presenting red and yellow areas, the red, or brownish red being more pronounced. The size is diminished in all diameters, especially antero-posteriorly. Consistence is extremely flabby, and the capsule is loose and wrinkled. The structures at the hilum show no changes except that the lymphatic glands are enlarged, reddish, and in places hemorrhagic. The liver cuts with difficulty, and its cut surface is mottled, brownish red and yellow, and the lobular markings are absent except in the upper right corner of the right lobe, where there is a grayish network that corresponds to Glisson's capsule, enclosing reddish liver substance in the form of ordinary lobules. Otherwise it is chiefly red or brownish-red with small areas of yellow, while the left lobe is principally a pure yellow. The cut surface is moist, but very little blood exudes from the vessels, which appear closer together than normally. The gall bladder is empty except for a thin layer of grayish mucoid substance.

Spleen.—This is large, soft and red.

Pancreas.—This organ shows no changes.

Head.—The scalp, skull, membranes of the brain and brain substance are normal. The hypophysis is uniformly enlarged.

Anatomic Diagnosis.—Puerperal state. General jaundice. Acute yellow atrophy of the liver. Multiple hemorrhagic extravasations (subpleural, subepicardial, periaortic, subcutaneous and pulmonary). Enlarged thyroid and hypophysis. Acute degeneration of the kidneys. Moderate right hydronephrosis.

MICROSCOPIC EXAMINATION.

Liver.—In a section through an area more nearly normal than most of the organ, the liver cells show little change except that there is some blood pigment. There are some areas of necrosis, both central and peripheral, which show the remains of destroyed liver cell nuclei, lying in the original stroma, which is unaffected. At the periphery, there is an extensive formation of new bile ducts and round cell infiltration. No blood is present in the section.

In a section through a yellow area the lobules are indistinct and swollen, the individual cells appearing as swollen, yellow granular, necrotic plaques, with indistinct outlines and showing no nuclei, the arrangement into columns being lost. The corners of the lobules are indicated by a few faintly staining nuclei about the bile ducts, which, as we approach the borders of the yellow areas, where they fade into red, become more extensive, take the stain more deeply, and show proliferation of the bile duct epithelium, the formation of new bile ducts, and many isolated epithelial cells and numerous round and epithelioid cells. The central vein is somewhat thickened.

A section through a red area shows a reticular mass showing a few scattered nuclei, interspersed with areas of densely packed nuclei, enclosing the old proliferating bile ducts and new-formed ones. These areas are much closer together than normally, showing contraction of the lobule. The new bile ducts are atypical in shape, sometimes with and sometimes without a lumen, taking a tortuous course, and showing dendritic processes; the epithelium is often three or four layers of cells deep in the lining of the lumen. The remainder of these areas consists of round and epithelioid cells. The reddish reticular mass shows a few vacuoles, the site of destroyed liver cells, sometimes containing the remains of disintegrated nuclei, and numerous red corpuscles lying in the original interstitial tissue of the lobule, which is brought into prominence through the contraction of the lobule.

Kidney.—This shows much congestion of the cortex. The space surrounding a glomerulus is filled with débris from the disintegrated and desquamated epithelium of Bowman's capsule. The glomerulus itself is normal. The cells of the convoluted tubules show the changes of cloudy swelling, and the lumen is filled with granular débris.

Other Organs.—In the uterus masses of syncytial cells and thrombi containing many necrotic leucocytes are found in the sinuses. The hypophysis showed a cyst with colloid contents near the anterior margin, as large as a grain of wheat and without cellular lining. The thyroid is distended with colloid. The gall bladder shows desquamation of its epithelium.

BACTERIOLOGIC REPORT.

Cultures on glycerin agar plates were made from heart's blood, kidney, liver, spleen and lung, and two organisms were isolated. Cocci in pairs, staining by Gram's method, the colonies being round and grayish, with sharp margins. Bacilli not staining by Gram's method, the colonies large, round and grayish white, and showing on the surface a brownish boat-shaped area. Anaërobic cultures from the liver showed no growth. Serum tubes showed the same growths as the plate cultures. Serum tubes from the gall bladder remained sterile.

Cover slips from the heart's blood show numerous diplococci (1-1.5 microns), mostly in twos, or chains of from three to five, the opposing ends being nearly square; also long bacilli lying often end to end. Cover slips from the gall bladder show occasional cocci, and a few yellowish tyrosin crystals. Slips from the spleen, lung, liver and kidney show the same diplococci and bacilli.

Tubes inoculated with the cocci show:

Bouillon: Slight gray cloud.

Agar: Numerous pin-point white colonies along the needle track. No pigmentation.

Potato: A few glistening colonies along the streak; no growth in potato tubes from kidney or lung.

Gelatin: Not liquefied.

Tubes inoculated with the bacillus show:

Bouillon: Slight cloudiness toward the bottom.

Agar: Grayish yellow colonies along the streak, and gas in glucose agar.

Potato: Grayish yellow, glistening, slimy growth along the streak.

Litmus Milk: Reddened and coagulated. Hanging drop shows slight motility.

A small quantity of liver substance was inserted in the abdominal cavity of a rabbit. It remained perfectly well, except for slight emaciation. It was killed at the end of one month, and the only change found was that the liver was brown in color.

Case 2.—Mrs. H., housewife, aged 35, had been married twelve years and was the mother of five children. The last child was born three and a half years before the mother's death.

History.—The patient's health is said to have been failing to some extent during the last year of her life. In August, 1902, jaundice appeared. She complained of feeling tired, and of headache, constipation and pain in the right shoulder. The stools were light in color. The appetite and sleep were good. She had been semicomatose for three days when admitted to the Norwegian Tabitha Hospital, Nov. 2, 1902, at noon. The coma was then complete, and the jaundice very deep. The temperature was 98.6°, pulse 110, respiration 18. The urine was free from albumin and sugar, but contained bile and blood casts; no record of an examination for leucin and tyrosin. At 5 p. m. the temperature was 101.2°, pulse 134, respirations 22. At 11 p. m., temperature 104.2°, pulse 170, respirations 40. At midnight, temperature 105.4°, pulse 184, respirations 44. November 3, 1 a. m., temperature 106.3°. Death occurred at 2:30 a. m.

AUTOPSY.

An incomplete postmortem examination was made by the hospital internes seven hours after death. The organs removed were sent to the Pathologic Laboratory of Rush Medical College and examined by one of us. The record made is as follows:

External Appearances—The body is well nourished. The skin is of a deep greenish color and the face dark bluish, with ecchymoses.

Abdominal Cavity.—The peritoneal cavity contains several liters of clear yellow serum.

The organs of the neck were not examined.

Lungs.—The right lung weighs 570 grams. The pleura is smooth. The lung crepitates everywhere. The upper lobe is reddish on section, rather bloody, and a considerable amount of frothy fluid exudes. The middle lobe is spongy and light grayish-red in color. The cut surface of the lower lobe is dark red. This lobe contains considerable blood and frothy fluid. The left lung was not removed.

Heart.—The heart weighs 240 grams. The pericardium is smooth. The tricuspid opening admits six finger tips, the mitral four. There is some fibrous thickening at the free margin of the anterior mitral cusp. The other valves are normal. The myocardium is light grayish-red, and rather soft. The beginning of the coronary vessels is smooth. In the aorta there are a few small sclerotic areas in the ascending arch.

Spleen.—The spleen weighs 200 grams, and is rather soft. The cut surface is dark red and very bloody. The malpighian bodies and trabeculæ are plainly visible.

Gastrointestinal Tract.—The lining of the stomach is coated with black mucus and is rather pale, with hyperemic and ecchymotic points.

Liver.—The liver weighs 830 grams, and measures 21x22 x11x5x2 cm. (placed on a flat surface). The anterior portion of the right lobe is flattened and elongated. There is a transverse rib indentation running across the upper surface of the right lobe 8 cm. back of the anterior edge. The organ is very soft. Its external surface is mottled dark red and light grayish-yellow. The cut surface is also mottled, showing two sharply differentiated appearances of the tissue. About one-half of the cut surface is red, with fairly distinct markings; the lobules are here very small, with gray centers. The rest of the cut surface is made up of islands of light grayish tissue, which is firmer and has much larger lobules, the centers of which are reddish and sunken, the outer portions grayish red. In the substance of the liver are two cholesterin concretions, 1 and 3 mm., respectively, in diameter.

Gall Bladder.—The gall bladder contains thick, dark green bile.

Kidneys.—The right kidney is soft, its capsule smooth, and its external surface pale. On section, the cortex is pale and the cortical markings rather indistinct. The medulla is dark red. The cortex is about 5 mm. thick, and the relation of cortex to medulla varies from 1-3 to 1-4. The pelvis is smooth. Both kidneys are alike.

No other organs were removed.

Anatomic Diagnosis.—Acute yellow atrophy of the liver. General icterus. Ecchymoses of stomach and skin of face. Ascites. Pulmonary edema and congestion. Cloudy swelling of kidneys. Acute splenitis. Sclerosis of aorta (slight). Rib furrows in liver. Calculi in liver.

MICROSCOPIC EXAMINATION.

Liver.—Sections from the yellowish areas where the lobules are large show the arrangement of the liver cells in columns to be preserved. Many cells appear normal. Others present a more or less granular, partly unstained cytoplasm. Some cells contain yellowish pigment. Many polymorphonuclear cells have found their way between the columns and also in gaps between individual cells. There are also large areas made up of portions of adjoining lobules in which the liver cells are necrotic. Their nuclei fail to stain and the outline of the shrunken cell-remains are hard to distinguish. In such areas, the polymorphonuclear and other round cells are very numerous. The periportal tisue is highly cellular, mononuclear round cells predominating. There seems to be a slight degree of new formation of small bile ducts, rows of small, deeply staining cells being seen, with imperfect lumina.

In the red areas the changes just mentioned, viz., necrosis of liver cells, leucocytic invasion, interstitial proliferation, and regenerative efforts on the part of the bile ducts, are much more advanced. All liver cells are more or less necrotic, and in large areas almost none are present, blood capillaries and the various invading cells being left. The capillary walls are altered, generally appearing thickened and homogeneous, taking a faint bluish-gray stain with hematoxylin. Many new and imperfectly formed bile ducts are seen. Mitotic figures in the lining of the new ducts were searched for in vain. Most of the inflammatory round cells are of the appearance of small lymphocytes; some cells have the characteristics of plasma cells.

Sections stained by osmic acid (Marchi procedure) show but little fat to be present in the degenerated cells.

Case 3.—The case under consideration concerns a young man of American parentage, 20 years of age, who died at the Englewood Union Hospital, Chicago, March 28, 1904, in the service of Dr. J. S. Hunt, to whom we are indebted for the following history:

History.—G. M., a bookkeeper, was a rather delicately built young man, with a family history of tuberculosis in several of his immediate family; personal habits, good; venereal infection denied. He was apparently in normal health until one morning in the middle of February, after attending a dance, when he noticed that he was jaundiced. During the next week he was able to attend to his work, but felt a good deal of lassitude, with loss of appetite, and constipation. There was slight pain in the epigastrium, but no vomiting. The jaundice continued, his symptoms increased, and, about March 17, he became unconscious. On March 19, still unconscious, he was admitted to the hospital. At the time of entrance he was slightly delirious, with involuntary bowel movements, retention of urine, and vomiting of bloody fluid. This condition continued until his death, about six weeks after the onset of the illness. Most of the time the temperature was normal or subnormal until a few hours before death, when it rose to 103°. The jaundice was very deep. The urine was bile stained; leucin and tyrosin were not found, but no attempt was made to determine their presence except by microscopic examination of the sediment. The liver dullness was found to be somewhat less than normal, and there was extreme tenderness beneath the right costal arch. Dr. Bacon and Dr. E. Kuh also saw the case, and a diagnosis was made of acute yellow atrophy of the liver.

AUTOPSY.

Autopsy was performed at the hospital 3½ hours after death, and the report of the findings is as follows:

External Appearance.—The body is that of a slenderly built, poorly nourished young man, 169 cm. long. The skin throughout is of a bright yellow color, deeper than lemon-yellow. Rigor mortis absent; body still warm. There are no external markings of importance with the exception that a number of evidences of hypodermic injections may be seen. The superficial glands are not palpable.

Abdominal Cavity.—The right inguinal ring is open but empty, admitting one finger tip; the other rings are closed. There is very little fat in the omentum, which is free from adhesions. The abdominal cavity contains, approximately, 200 cc. of clear yellow fluid. The vermiform appendix lies coiled on itself, imbedded in a fold of meso-appendix, behind the ileum. It contains two hard fecal concretions. There are no adhesions. The pouch of the cecum at the base of the appendix appears reddened, but smooth and shining externally. There is some edema in the wall of the cecum with ecchymosis beneath the peritoneum. The mesentery has many areas of extravasations of blood between its layers and is generally congested. The mesenteric lymph glands are slightly enlarged but pale, while the retroperitoneal glands are not enlarged. There are no adhesions present. The margin of the liver lies two finger breadths above the costal arch. The gall bladder is adherent to the mesocolon by firm fibrous adhesions. The lesser peritoneal cavity is open. Beneath the peritoneum covering the bowel, occasional congested areas are seen; no such areas are found in the parietal peritoneum. The diaphragm on the right side is at the level of the fifth rib, the same being true on the left side. The sternum is extremely short. There are no visible remnants of the thymus.

Pleural Cavities.—The left pleural cavity is free from fluid. Dense adhesions are found about the apex of the left lung. There are no adhesions in the right pleural cavity.

Pericardial Cavity.—This contains, approximately, 50 cc. of clear fluid.

Heart.—The heart weighs about 250 grams. It is of normal size. The aortic valves appear normal. At the beginning of the aorta some slight sclerosis may be seen; the beginning of the coronary artery is free from sclerosis. There is a slight hypertrophy of the left ventricle. The endocardium is stained yellow. The papillary muscles appear much thickened, while there is no visible increase of fibrous tissue. The tricuspid and mitral valves are normal. The wall of the left ventricle is from 10 to 12 mm. in thickness.

Lungs.—The left lung is of normal appearance and crepitates everywhere except in the apex, where there is nodular consolidation. This area is full of hard lumps, less than 1 cm. in diameter, being found nowhere else except in this area, which is the size of a goose egg. On section, these nodules appear as yellow areas surrounded by hard, dark tissue. There are likewise a number of small cavities present, the largest of which is 1 cm. in diameter, and opens on the bronchi. The right lung crepitates everywhere except for three pea-sized nodules in the upper lobe posteriorly, similar to those in the left apex.

Liver.—This is very small, weighing 970 grams. Its dimensions are as follows: 23x16x9x2 cm. There are no adhesions about the liver. The changes are particularly marked in the left lobe and in the margin of the right lobe. The surface of the left lobe and the margin of the right lobe are decidedly wrinkled, while the upper part of the right lobe is not shrunken and appears much firmer. The left lobe and the margin of the right may be doubled on themselves. On section, the lobules of the shrunken portion are seen to be much smaller, while the lobules of the remainder of the liver tissue are enlarged. The left lobe is of uniform consistence, and is more pliable but not softer than normal liver. The margin of the right lobe is the same except that scattered through it can be felt pea-sized nodules, some of which can be seen protruding on the surface. These nodules are most abundant at the junction of the atrophied and large portions of the liver; in the upper part of the liver these nodules can not be felt. The cut surface of the atrophic portion is of a brownish-red color, becoming lighter yellow in the enlarged portions. The lobules of the large part are enlarged, yellow in color, the centers being darker than the periphery and the cut surface is irregular. The bile ducts are not distended. In the atrophied portion the lobules are very small and of normal color. The small nodules described above on section correspond to islands of yellow tissue lying in the red. The lymph glands at the hilum are enlarged, brownish at the center and pale at the periphery. The gall bladder is not enlarged and is of normal size. It contains a very thick green-black bile. No concretions are demonstrable. The mucous membrane appears normal. Bile ducts are all patent.

Spleen.—This is about normal size, weighing 160 grams. An accessory spleen is present at the hilum, of 15 mm. in diameter. The cut surface appears normal except that the malpighian bodies are not readily seen. Its dimensions are 13x7 cm.

Pancreas.—This shows no changes from normal. The glands about the pancreas are enlarged, brownish in the center and pale at the periphery.

Gastrointestinal Tract.—The esophagus and stomach are full of a thin, bloody fluid. The mucous membrane of the stomach shows no gross changes. A great portion of the fat of the mesentery is partly replaced by a serous fluid. The wall of the bowel appears slightly thickened as if edematous, while the entire length of the bowel contains a dark red material (altered blood). The wall of the cecum is very edematous, but otherwise unchanged. The mucous membrane of the cecum is darkened, corresponding to the reddened area described above, while the mucosa remains intact. The duodenum contains a blood-red fluid similar to that found in the esophagus and stomach. Bile can be expressed from the ampulla; it is very black-green, thick and tarry and does not flow easily. There are no changes in the duodenum. The cystic and hepatic ducts, just above their junction, are not dilated.

Adrenals.—These are both normal.

Kidneys.—The kidneys are slightly larger than normal, weighing together 330 grams. The color of the right kidney is very yellow. The cortex is thickened, averaging 7 or 8 mm. across; the cortical markings are indistinct. The cortex contains many greenish streaks. The left kidney corresponds to the right; the cortex containing a few more green areas.

Urinary Tract.—The bladder contains bile-stained urine. The testicles appear normal.

Anatomic Diagnosis.—Acute yellow atrophy of the liver; general icterus; ulcerative and nodular pulmonary tuberculosis of left apex and of right upper lobe; left apical fibrous pleuritis; parenchymal degeneration of myocardium and kidneys; fibrous pericholecystitis; fatty degeneration and biliary pigmentation of kidney with acute parenchymal changes; hemorrhages beneath the peritoneum; blood in the gastrointestinal tract; hyperplasia of peripancreatic lymph glands; edema and serous atrophy of fat in intestines and mesentery.

MICROSCOPIC EXAMINATION.

Liver.—Three distinct areas, corresponding to the red, red-yellow and yellow areas of the gross tissue, may be picked out in the miscroscopic sections.

Yellow Areas: Outline of liver lobule fairly well preserved. Liver cords atrophied in center of lobule, but wider than normal in the periphery. Protoplasm is finely granular, vacuolized, and the cells are greatly swollen; nuclei show faintly stained border and a few blue points within, otherwise practically unstained. Many cells contain orange-yellow granules, particularly near the center of the lobule. The staining of liver cells generally is strikingly poor. Many of the small bile capillaries are completely plugged with a brownish mass. Only occasionally can cells be found that appear necrosed; these are generally located in the center of the lobule, and often contain golden-brown pigment in coarse granules. The amount of blood in the capillaries is small. A few leucocytes are present throughout the lobules, particularly in the peripheries. Between the lobules the connective tissue is infiltrated with small, round cells in great numbers, and a few leucocytes. The bile vessels seem to be much increased in number, and often to be filled with a homogeneous yellow-brown material. To sum up: In the yellow areas the parenchyma cells are swollen, stain poorly, and have disappeared to a considerable extent in the center of the lobule; the bile vessels and interstitial connective tissue have begun to proliferate; there is much bile pigment, and the vessels seem to be plugged with secretion.

Red Area: A section taken from this part of the liver does not show a trace of any of the original liver cords. The central vein of each lobule has a thickened wall, which is hyalin. The central part of each lobule is composed of a groundwork staining with eosin, in which are numerous elongated, pale nuclei, together with a few small, round, dark nuclei, and occasional polymorphonuclear leucocytes. Occasional capillaries containing corpuscles are seen, but they are few and small. There is a small amount of brown pigment in the bodies of the cells. The peripheries of the lobules are marked by the presence of large numbers of columns of cells, resembling small bile ducts, the nuclei of which stain deeply, as also does the cytoplasm. They differ from bile ducts in that they contain no lumen, as a rule, and have a distinct tendency to grow into the lobule. When a lumen is present it contains no bile. Mitoses are rare. There are numerous polymorphonuclear leucocytes among and in these tubules, and frequently an eosinophile or plasma cell. There are no changes in the portal vein or hepatic artery. The capsule of the liver is thickened and wrinkled, and the size of each lobule is reduced very greatly. Van Gieson's stain shows that the material filling the center of the lobule is composed of fine fibrils of connective tissue running from the center towards the periphery of the lobule; it appears that the amount of connective tissue in the lobule is not really increased, but rather made more prominent by the disappearance of the liver cells. Sections taken from the point of junction of the yellow and the red portions show merely various degrees of absence or presence of liver cells in the center of the lobules. No matter how few the cells that are left, they preserve the same characters as those seen in the yellow areas; the marked necrosis of liver cells so prominent in some instances of acute atrophy is wanting in this specimen.

Sections stained by sudan III show surprisingly little fat. In the yellow area there is practically no fat to be found in the swollen cells, but those in the center of the lobule that are greatly atrophied often are full of fine droplets. The proliferating duct cells are free from fat. It is evident from the section that fatty degeneration is not a prominent part of the process.

Gall Bladder.—All that is left of the epithelium is a granular eosin-staining material, occasionally showing outlines of the cells. This loss of stain extends into the tissues of the wall of the gall bladder as far as the deeper muscular layers. There is no sharp line of demarcation between the necrotic and the living tissues, and no evidence of inflammatory reaction. In the areolar tissue, outside the muscularis, are many cells with small, dark nuclei, and considerable cytoplasm; occasionally they are collected in groups with a small amount of a stringy hematoxylin-staining material between them. There are very few leucocytes.

Bile Ducts.—Section through the hepatic and cystic ducts near their junction shows an absence of the changes seen in the gall gladder. The epithelial cells are partly desquamated, but, where present, stain well.

Lung.—The tissue is the seat of an active tuberculosis, as shown by the small and large foci of round cell infiltration; miliary, caseous and fibrocaseous tubercles; and coalesced necrotic areas. The section borders on a large abscess wall containing cytoplasmic and nuclear detritus. The alveoli are wanting, being replaced for the most part by fibrous tissue. In some areas, the alveolar wall epithelium is changed to a distinct columnar type. A few giant cells and fibrin are present; fat globules are present in alveolar epithelial cells. The tissue throughout shows marked congestion and hemorrhage.

Spleen.—The malpighian bodies are small and far apart, their germinal centers occasionally indicated; otherwise no changes. The pulp is much increased in amount by "endothelial hyperplasia," and there are also many eosinophiles, with only a moderate amount of other leucocytes. No pigmentation or other changes are present. The accessory spleen is no different. Phagocytes and plasma cells are practically absent.

Pancreas.—This shows no changes.

Stomach.—The mucosa is covered with masses of coalesced red corpuscles; otherwise there are no changes.

Adrenals.—No changes.

Kidney.—The malpighian bodies show no changes. The epithelium of the convoluted tubules is swollen, granular, faintly stained, and often the nuclei are invisible. In many tubules bile-stained casts are found, and greenish pigment is present occasionally in the epithelium of the convoluted tubules. By sudan III many fat granules are found at the base of the cells of the convoluted tubules.

Lymph Glands.—Section from the gland at the hilum of the liver shows that the germinal center of the lymph nodes are masses of nuclei, staining intensely blue. Sinuses show much "endothelial hyperplasia." Eosinophiles are abundant, particularly in the nodes and leucocytes are also numerous.

Myocardium and Testicles.—Show no changes.

BACTERIOLOGIC REPORT.

The following organisms were isolated from cultures made at the autopsy:

From the Kidney: 1. A micrococcus, arranged in chains, was found in bouillon after 24 hours. It did not develop on plating. Staining with methylene blue and Gram's showed a streptococcus. 2. A short bacillus, diplococcus forms, appearing very frequently. Capsulated in hanging drop. Stained with methylene blue—destains by Gram's. This organism gave the cultural characteristics of *B. mucosus capsulatus.* It was also found in the heart's blood and liver.

From the Heart's Blood and Liver.—A micrococcus, arranged in bunches. Staphylococcus forms. Staining by methylene blue and Gram's method shows characteristics of *staphylococcus pyogenes aureus. B. mucosus capsulatus* was also obtained accompanying the staphylococcus.

CASE 4.—We have also had the opportunity of examining microscopic specimens from a case observed by Dr. George H. Kennett at Missoula, Mont., in October, 1902, the details of which he has kindly permitted us to publish.

History.—F. M., a mail clerk, age about 35 years, had been feeling poorly for five or six weeks, and was thought to have catarrhal jaundice. He kept on working and at first was not confined to bed, but at last entered the Northern Pacific Hospital in Missoula. After he had been in the hospital a week he was found one morning in deep coma and with profound icterus. The preceding evening he had been as well as usual. He lived for three or four days in a comatose condition. The lower border of the liver dullness was noticed to recede two or three fingers' breadth. The urine contained bile, but although leucin and tyrosin were looked for with the microscope they could not be found; the urine was not concentrated, however, nor was any chemical examination made. The symptom that attracted most attention was an unbearable stench from the body, so bad that no one was able to be near the patient for any length of time. The odor was said to bear a slight resemblance to that of bromidrosis.

AUTOPSY.

The autopsy was limited to an examination of the abdominal cavity. It contained no free fluid. The liver measured 23 cm. from side to side, 14.5 cm. antero-posteriorly, and 5.5 cm. from above downward, and weighed 880 grams. The capsule was smooth, but wrinkled over the left lobe, which was thin and very flabby, while the right lobe was fairly firm. Under the capsule many dark red spots were seen, the largest 1 cm. in diameter. The cut surface was of a pale yellow color. In the right lobe the lobular markings were fairly distinct. Dark red spots were scattered over the cut surface, in places coalescing to form larger areas. In the left lobe the lobular markings could not be made out, and a few small hemorrhagic spots were also seen here. The gall bladder measured 5.5x1.5 cm., and contained dark bile of syrupy consistence. The bile ducts were patent, as bile would flow from the ampulla into the duodenum when the gall bladder was squeezed.

The spleen measured 14x7.5x3 cm., and weighed 240 grams. It was of a dark red color.

Each kidney weighed about 175 grams. The capsules were not adherent, the cortical markings were not distinct, and the pyramids were deep red in color.

No further notes were made of the gross examination.

MICROSCOPIC EXAMINATION.

Sections made from pieces of the liver, spleen and kidney, fixed in Zenker's fluid, were given us by Dr. Kennett.

Liver.—Left lobe: The greater part of the section is made up of necrotic parenchyma, in which all trace of the arrangement of the cells into columns is lost. A moderate number of fat holes is seen in this tissue, and small hemorrhages are present. Only shadows of liver cells can be made out, while there are a great many mononuclear round cells. Polymorphonuclear cells are infrequent. Small clumps of greenish pigment are seen here and there. A relatively small part of the section is made up of islands of preserved liver tissue columns of variable size; nowhere is a whole lobule found preserved. The cells are swollen, their cytoplasm very granular, frequently containing small vacuoles which occasionally are very numerous in a single cell. In most of these cells the nuclei are preserved. The larger the cluster of liver columns the less advanced the changes are found to be. The interlobular connective tissue is normal in quantity, and not very rich in cells. There is only a slight proliferation of bile ducts in this case.

Right lobe: Here the sectional area occupied by preserved columns is considerably greater and the degenerative changes in their cells less advanced, but of the same kind as in the left lobe. Between the columns necrotic tissue, like that described in the left lobe, is seen. It is of similar appearance with the exception that the number of fat holes and the proportion of polymorphonuclear cells is greater. Otherwise the section answers to the description given of the left lobe.

Spleen.—Shows extreme hpyeremia, the vessels and pulp sinuses being dilated and engorged with blood. In the pulp, many polymorphonuclear cells are seen, and phagocytes containing greenish-yellow pigment. The pulp is increased in amount, the malpighian bodies and trabeculæ are normal.

Kidney.—Here the principal change is in the convoluted tubules, the epithelium of which shows extensive necrosis. Most of the cells are disintegrating and the lumina are filled with cell débris. Only a few epithelial cells retain their nuclei. Here and there small deposits of greenish pigment may be seen in the degenerating cells. The straight tubules and glomeruli are practically normal. There are no interstitial changes.

It can not be said that our cases add anything to the obscure subject of the etiology of acute yellow atrophy. The bacteriology in the cases in which it was followed out was as uncertain as is generally the case, for the results reported in the literature are most discordant, no one organism being found with sufficient frequency to entitle it to special consideration. The diversity of the predisposing and exciting causes that have been suggested to explain the etiology of this disease is so great as to lead many to the conclusion that very possibly the cause is complex, and that many conditions can, under certain circumstances, lead to the anatomic picture that is considered typical. This seems especially probable if we consider the number of more or less closely associated conditions found in the liver from quite different causes. As generally known, phosphorus poisoning most closely resembles acute yellow atrophy. It is perhaps not so generally appreciated that other forms of intoxication may lead to changes resembling those of acute atrophy, either grossly or miscroscopically. For example, after chloroform anesthesia a symptom complex may arise similar to or indistinguishable from, that of yellow atrophy. Ballin reports nine postoperative cases of acute yellow atrophy, but it is by no means certain that the changes of the liver produced by the anesthetic are identical with those of this disease. One of the earliest changes of yellow atrophy seems to be a degeneration beginning in the center of the lobules, developing into a necrosis, which in time involves nearly all the lobule, but which at first is more or less a central necrosis. With these changes may be compared the central zonal necrosis of the liver lobule so frequent in various intoxications, such as diphtheria, streptococcus septicemia, acute endocarditis, pneumonia, and also in more obscure intoxications such as puerperal eclampsia. Yet there must be some quite sensational difference between the necrosis from these common intoxications and that which initiates acute yellow atrophy, for it would seem that otherwise the latter would be much more common than it is.

It is quite possible that we may gain a better insight into this perplexing disease through the newer investigations concerning the processes of self digestion of cells, or autolysis. Salkowski has shown that any aseptically preserved organ is capable of digesting itself at a fair rate, when kept at body temperature, with products quite similar to those of ordinary tryptic digestion, including among them the leucin and tyrosin so characteristic of intestinal digestion. Autolysis has been considerably investigated in both physiologic and pathologic bearings, and found to be a process of importance in many pathologic conditions, such as the absorption of pneumonic exudates, the liquefaction of necrosed but asceptic tissues, and in suppuration. In acute yellow atrophy we are forcibly reminded of the processes of autolysis, for in it we find an absorption of as much as a kilogram or more of liver tissue within a few days or weeks, and at the same time the appearance of products of proteolysis in the urine. It has long been taught that the reason for the appearance of leucin and tyrosin in the urine in this disease is the throwing out of function of a large part of the liver tissue, so that these nitrogenous bodies being brought to it by the portal blood from the intestines are not converted into urea as they normally are, and so passed to the kidney to be eliminated. Indeed, this has been much used as an illustration of the function of the liver in the formation of urea from amido-bodies. But with an understanding of the possibilities of self-digestion in the liver it becomes a question if part of the leucin and tyrosin may not be derived from the autolysis of the liver cells, if not all of it.

Taylor[2] analyzed a liver showing the changes of acute yellow atrophy and weighing 900 grams, and found that it contained probably as much as 2 grams of leucin and asparaginic acid, and the watery extract contained deutero-albumose but no true peptone. From one liver in a condition of "chloroform necrosis" resembling clinically acute yellow atrophy he obtained 4 grams of leucin, 2.2 grams of tyrosin, and 2.3 grams of arginin nitrate. These results show conclusively that in both acute yellow atrophy and other forms of hepatic degeneration the products of digestion can be found in the liver itself in no inconsiderable quantities, despite the fact that by far the largest part of that which is formed must be rapidly carried away in the circulation. Whether this autolysis of the liver is to be considered the chief source of leucin and tyrosin found in the urine during the course of the disease must remain an unsettled question until we have more complete data concerning the total elimination of nitrogen in its different compounds during the entire disease, a difficult matter because of the infrequence of the cases.

Neuberg and Richter[3] have made an analysis of 345 c.c. of blood from a case of acute yellow atrophy, and found 0.787 gram of tyrosin, 1.102 grams leucin, and 0.240 gram of lysin, making a total of 2.13 grams of amido-acids. On this basis the entire circulating blood should have contained about 30 grams. They believe that these amido-bodies can not be derived solely from hepatic autolysis, since if the entire liver were digested, it would only yield about the same amount of tyrosin as they showed to be present in the circulating blood. As the elimination of urea was not altered, they do not accept the old idea of a diversion of the nitrogen from its normal metabolism and elimination as amido-acids. Nor did it seem possible that these bodies came from autolysis of the blood. It is possible that they came in part from the intestine, passing in abnormally large amounts through the diseased intestinal wall, and perhaps accumulating in the blood because of the diseased condition of the kidneys. This assumption, however, is based on a greater degree of intestinal involvement than is generally found, and fails to explain the failure of leucin and tyrosin to appear in the urine in still greater quantities in conditions associated with greater lesions of the intestines: unless we admit that the liver plays an important part in converting such substances normally and is hampered by the pathologic changes present in acute atrophy. In other words, it is difficult to tell just what relation intestinal and hepatic disturbances bear to each other and to the disease itself, in acute yellow atrophy of the liver.

In attempting to correlate the processes of autolysis with the changes usual in acute yellow atrophy we need to take into account certain facts that can be applied. First of all we have a marked necrosis involving all the cells of lobules in large areas of the liver, and sparing other areas, and also sparing the connective tissues of the lobules that are involved, the blood vessels and the interlobular bile ducts. In many cases greater or less degrees of regeneration have been observed, and it is found to consist of a general proliferation of the surviving cells, both of connective tissue and of bile duct epithelium. The former multiplies and leads to a large excess of connective tissue, which would undoubtedly prevent the liver from ever again becoming normal if recovery occurred. The bile ducts of the epithelium reassume their embryologic function, and from them are developed many new cords of liver cells, growing between the original strands of intralobular connective tissue which have survived the necrosis within the lobule. It would seem, therefore, that we are dealing with an intoxication by a substance with a considerable degree of specificity for certain cells, those of the hepatic cords, which spares even so closely related cells as those of the bile ducts. The fact that different parts of the liver are affected to such different degrees, and that the process is found in different stages of advancement in different areas at the same time, rather speaks against the idea that the changes are brought about by some substances absorbed from the intestines, for it would be expected that in this case the process would be more diffuse; conversely, this irregularity of distribution would speak more for a local origin of the necrogenic substances.

The relatively slight involvement of the bile ducts speaks against the conception of an ascending biliary infection or intoxication which has often been suggested. One of the most interesting hypotheses advanced to explain the etiology of acute yellow atrophy is that of Quincke, proposed by him several years ago, but so far as we know not studied further either by him or by any one else. His idea was that through an occlusion of the ampulla of Vater the pancreatic juice might be forced back along the bile tracts, and lead to necrosis and rapid digestion of the liver cells, thus producing the features of acute yellow atrophy. This is an attractive hypothesis, especially as in a considerable number of cases gallstones have been found; in our second case two small stones were found within the liver substance. There are many objections, however. The first is that in but one case so far reported has an obstruction been found in the ampulla. More important is the fact that the bile pressure is greater than the pressure of the pancreatic juice, and as has been well proven by Opie the result of occlusion in the ampulla is not an escape of pancreatic juice into the biliary system, but rather an escape of bile into the pancreas, resulting in pancreatitis, fat necrosis, etc. Still it might be imagined that under unusual conditions a reverse peristalsis might force the pancreatic juice into the liver. Mr. Charles L. Best[4] has performed a number of experiments, to test Quincke's theory, in our laboratory. Commercial pancreatins were injected into the common bile ducts of cats, dogs and rabbits, above a ligature, and in some animals the pancreatin was injected directly into the liver. In a few animals some degree of central necrosis of the liver lobules was produced, but in none were changes observed that approached at all closely those of acute atrophy. Of course, such experiments do not exactly reproduce the conditions as they would exist in a human being, and are only suggestive in a negative direction.

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[2] Taylor: Zeit. f. Physiol. Chem., 1902, xxxiv, 580, and also Jour. Med. Research, 1902, viii, 424.

[3] Deut. med. Woch., 1904, xxx, 499.

[4] Best: Thesis, the University of Chicago, 1903, "Acute Yellow Atrophy of the Liver."

The necrosis in acute yellow atrophy seems to differ from ordinary necrosis in the rapidity and completeness with which the necrosed cells are digested and absorbed. It resembles the resolution of lobar pneumonia more closely than anything else, but differs in the absence of any considerable number of leucocytes. This fact may be taken to indicate: First, that the poisons are so specific for liver cells that they are injured to a greater degree than other cells, so that it is possible for the patients to survive the necrosis for a considerable time during which autolysis is going on; second, that as in pneumonia the circulation through the diseased tissues is not seriously impaired, so that absorption is possible; third, that the absence of leucocytes makes it probable that the autolysis is brought about by the diseased liver cells themselves.

This last idea requires the assumption that a cell may be killed and still retain autolytic powers, which has been abundantly demonstrated to be the case; it is seen particularly well when necrosis results from the shutting off of the blood supply, as in infarcts, when the conditions are somewhat similar to what they are in an organ removed from the body, and kept in the incubator in an aseptic condition. On the strength of these facts one might conceive as an explanation of acute yellow atrophy the poisoning of the liver by some substance which has a specific affinity for some vital ingredient of the liver cells, but which does not affect the autolytic ferments of these cells. Such changes as are typical for this disease might readily follow, for example, the destruction of the oxidizing ferments of the liver. The cells would then of necessity die, yet the autolysis would go on as in an infarcted area, only much more rapidly, because circulation is still present to remove the products as fast as formed, thus greatly hastening the reactions. In connection with this it may be brought forward that in phosphorous poisoning of dogs, which of all conditions most closely resembles acute yellow atrophy, Jacoby found the products of digestion in the livers, just as Taylor found them in the liver of a person dying from acute yellow atrophy, and also that Jacoby has showed that autolysis is very active in livers of phosphorous poisoning. Indeed, he found autolysis to be more rapid in livers from cases of phosphorous poisoning than in normal livers; the effects of the degenerative changes in favoring digestion might account for this.

One other point concerning the chemical changes of acute yellow atrophy may be mentioned. The statement is often made that the chief change is fatty degeneration, probably because the yellow color is thought to be due to fat, although as a matter of fact it is chiefly, if not entirely, due to bilirubin; this can be shown by putting a section of the fresh liver into dichromate solution, when the yellow turns to green because of the oxidation of the bilirubin into biliverdin. Taylor found in the liver which he studied that there was no increase in the fats over the normal amount, which is from 20 to 60 grams, whereas a liver the seat of fatty degeneration may contain from 400 to 500 grams of fat. In the two cases of this series in which the frozen sections were stained for fat there was found to be surprisingly little fat in the degenerating liver cells in any stage.

DELIRIUM AS A SYMPTOM OF HYSTERIA.

REPORT OF FOUR ILLUSTRATIVE CASES.*

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As it is well known, delirium constitutes the final phase of classic attacks of major hysteria as depicted by Richer and copied in many text-books. But the whole subject of insanity, in relation to hysteria, is apparently in more or less confusion and doubt in the minds of many who have written on the subject. Doubtless, as pointed out by Raymond and Janet,[1] this is in a large measure due to the fact that such cases, as a rule, are not in their continuity studied by the same medical men; since they usually fall under the observation of physicians outside the asylum at first and later come under the observation of the asylum physicians. Thus, it happens that the first-named physicians are able to study only the earlier manifestations and the last-named the later manifestations, with the result that both sets of observations are incomplete and deficient. While the removal of the patient to the asylum is purely for the purpose of securing control of him, the idea is only too prevalent that this move somehow changes the diagnosis from that of "nervous disease" to that of "insanity." The asylum physician, accustomed to dealing only with "insanity," is too prone to accept this dictum, to put one of his approved labels of insanity on the patient, frequently with little or no knowledge of the pre-asylum history. It may be remarked in passing that we have here a strong argument in favor of opening asylums to physicians outside them, and for asylum physicians to study patients outside the asylum as much as possible.

Since we recognize hysteria as an essentially mental disease, or, in the language of M. Sollier, "A mode of brain function," we ought to be prepared to recognize manifold mental symptoms as hysterical in character when certain criteria are present. Oddly enough, certain authors seem willing to call certain mental symptoms hysterical when they are not prolonged or profound, but fly to the designation "insanity" when the symptoms become more striking in type or pass a certain limit.

Among the mental symptoms recognized by various authors may be mentioned mutism, lethargy, somnolence, sleep-walking, catalepsy fasting, mania, depression, hypochondriasis, and delirium.

The question of delirium as a symptom of hysteria has been so well considered by Janet[2] that I quote him somewhat at length:

> We often meet hysterical deliriums quite permanent among children. M. Jolly has recently dwelt on these little patients who commit all manner of foolish things and seem to play a farce before their frightened parents. A number of authors—Briquet, Marce, Morel, J. Falret, Grasset, Krafft-Ebing, Schule—have established that hystericals, even adults, can

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Neuroses et Idees Fixes.

[2] The Mental State of Hystericals.

have deliriums of a maniacal form, deliriums quite prolonged and without any precise relations to the attack.

A disease is not an immutable entity, easily recognizable. It is a classification of symptoms grouped for the convenience of our mind. Hysteria is but a syndrome, an ensemble of facts grouped in a general idea, which facts are nearly all moral facts; they are forgetfulness, insensibilities, which are psychologic phenomena. There is no valid *a priori* reason to refuse to bring within this framework deliriums that are simply other mental phenomena. Besides these authors themselves scarcely apply their doctrines in their extreme sense, for they accept the delirium of the attack, and even anorexia, which is, to a supreme degree, a delirium of long duration. We may, then, consider certain deliriums as hysterical.

But should we for this reason fly to the opposite extreme and affirm that all the deliriums that present themselves in patients having or having had a few stigmata should be included within the range of hysteria? This inclusion would find great inconveniences. Some of these deliriums do not differ from others which befall equally non-hysterical people. Must all these innumerable phenomena be connected with hysteria? That would altogether confuse the analysis of the symptoms of hysteria. We would select among all these accidents those that come within our conception of hysteria.

This selection is extremely difficult, but it is an ideal which nowadays is far from being always possible. In order to be able to do it we ought to recognize two characteristics in a delirium: 1. Is this delirium the consequence of a clearly hysterical phenomena? This first characteristic is important; it allows us to eliminate febrile deliriums, toxic or otherwise, which hystericals may have in common with other patients. We have repeatedly shown that the delirium was, in the case of certain patients, but the aggravation of an anterior symptom. But this characteristic is far from being sufficient; for, to our mind, a hysterical symptom may by aggravation be completely transformed. 2. It would be necessary, even in delirium, to establish the fundamental character of the mental state of hysteria: The undoubling (*dedoublement*) of the mind, the alternation of the states of consciousness, the formation of phenomena really subconscious.

I now desire to present for your consideration the histories of four cases, which I have diagnosed as hysteria in a more or less tentative way, in which marked and more or less prolonged delirium was a symptom, together with the points which, to my mind, indicated the diagnosis in each case.

CASE 1.—An unmarried girl, aged 21 years, was admitted to St. Francis Hospital July 9, 1902.

History.—Her family history was negative. The only significant fact elicited in her personal history was a "jilting" on the part of her lover, which had occurred a few days before her admission. Five weeks before admission, for the first time in her life, she was seized with a violent general convulsion, during which she was unconscious and which was preceded by a severe headache. Six or seven hours later two more convulsions occurred. Each of these three seizures began in the feet and lasted about fifteen minutes. Twenty hours later two more convulsions occurred, each of about five minutes' duration. About July 1, nine days before admission, the patient was seized with a "loud talking spell," during which she called for almost everybody she knew, especially her fiancé. A period of mutism, during which she seemed to understand all that was going on about her, now followed and continued up until admission.

Condition in Hospital.—The patient was at once put to bed. She was mute, but not stuporous nor comatose. She was oblivious as to her surroundings, refused to eat, and was nourished for weeks with the stomach tube. Her temperature was 102 F. During the next week it was very irregular, ranging from 101 to 105.4. During the next week it was lower and the variation was much less, being from 100 to 101. During the subsequent two weeks the temperature gradually declined to the normal mark.

August 11: The nurse reported two "epileptic fits."

August 15: Another "fit." Unconscious for five minutes; bit tongue (?). Slept after the "fit."

The condition of the mutism continued until August 21, when the patient screamed and cried a good deal. Asked why, she said she had her brother's legs. Presently she relapsed again into mutism.

August 23: Quite noisy from 11 to 1 o'clock last night. To-day asked to go home. Mental confusion is shown in her conversation.

August 26: The patient took dinner at the table. She has been eating voluntarily during the past few days. For the first time she talked to me freely. She cried a good deal and asked to go home, stating where she lived. She is emaciated and bears the appearance of one who has gone through a serious illness. Examination revealed the presence of universal analgesia.

After this date the patient's mental and physical improvement were steady until October 14, when she was discharged, apparently well, no "fits" having occurred in the interval. A letter from the patient, dated April 1, 1903, nearly six months after her discharge, states that she has suffered from no "fits," has gained twenty pounds in weight and feels quite "as good as ever." A second letter, dated Jan. 3, 1904, states: "I am enjoying the best of health and have been since I left the hospital. As for the spells, or 'fits,' I have not had any of them." She also states that she did not remember going to the hospital, and only began to remember things after she got up and was going around.

The history of the outset of this case led to the suspicion that a brain tumor or abscess was producing the symptoms. This diagnosis was soon excluded. The diagnosis was then in doubt for many days. Typhoid fever, autointoxication, deep-seated abscess and general miliary tuberculosis were among the conditions whose possibilities were considered. The spleen was not enlarged, and the Widal blood test was reported negative. Tympanitis was not a symptom. During the first week of severe fever the patient was repeatedly examined by various members of the staff at St. Francis' Hospital. Dr. McKennan was, I believe, the first to suggest the diagnosis of hysteria, which I myself came to accept finally as the most probable one.

The points supporting this diagnosis are briefly these, considered separately and as a whole: The convulsive seizures at the outset, after the unhappy "love affair"; the screaming spell followed by weeks of mutism, without stupor; the passage of mutism into a delirious condition, during which several "fits" occurred; the presence of universal analgesia; the rapid convalescence, with freedom from "fits" of any sort; the permanence of the recovery.

How is the fever to be accounted for? It is supposable, I think, that a hysterical operation of the sympathetic system may have so changed the relationship between anabolism and katabolism of the body that a species of autointoxication was set up; or that it might have resulted from defective operation of the heat centers, whose operation was irregular—ataxic—and whose resultant activity was hysterical.

While it seems to me that this case is one of pure hysteria, and certainly one with hysterical manifestations, yet the course and the curve of the fever were much like those seen in typhoid fever; and I am even now not absolutely certain that this diagnosis should be excluded.

The later emaciation, too, argued for the antecedent ravage of an acute febrile disease of toxic character. But even if typhoid fever were allowed, it could not fully explain the symptoms which, in part at least, erly. She is still much emaciated, although eating well, and complains of much pain in her hands and numbness in her legs. I incline to believe that she suffers from a certain degree of neuritis in these members.

Feb. 13, 1904.—Patient has slowly, but steadily improved, mentally and physically. She walks with assistance. Legs are very incoördinate in their movement. Lying on the bed she moves them readily. She thus presents the symptom-complex of astasia abasia. When things go wrong she occasionally has a convulsive attack.

Further observation only strengthens my view that this is a severe case of major hysteria.

Westinghouse Building.

DISCUSSION.

Dr. Howell T. Pershing, Denver, Colo., mentioned the case of a young girl in the high school who had a number of attacks of illness which were regarded by the attending physician as purely hysterical. During the early spring, while at her school work, she was noticed to be unduly anxious about it. She then became delirious and would talk nonsense, especially about animals. She was kept at home under the care of a very sensible mother. A neurologist, Dr. Hopkins of Denver, who saw her early, regarded it as clearly a case of hysteria. After going on for some weeks the case came under Dr. Pershing's care, at which time it was very difficult to engage her attention or to get a rational answer to any question. She would keep muttering to herself, looking about, and perhaps starting up out of bed. She complained that she was not treated right and that someone was trying to poison her. She would talk disconnectedly about animals, bears, raccoons, panthers, snakes and so on, which her mother attributed to her having read Seton Thompson's animal stories. Dr. Pershing could not trace it directly to these stories, but he regarded it as purely hysterical, and thought it would be a good plan to employ the urinary test of Gilles and Cathelineau, so he had a chemist make a quantitative analysis. There was a decrease in the urea and in the total solids, but a decided increase in the proportion of the earthy to the alkaline phosphates. In other words, the urine was precisely in the condition which Gilles claims to be characteristic of hysteria. He gave a very confident prognosis regarding the final outcome of the case. She did not eat or sleep well and her condition, while not alarming at all, continued for ten or twelve weeks. One morning she got up much better, and from then on she made a very rapid and uninterrupted convalescence; in the course of a few days she ate heartily and gained very rapidly in weight. In the course of a month and a half she gained 20 pounds. She then looked very well and said that she remembered very little after she left school until she found herself getting well.

Dr. Theodore Diller, Pittsburg, Pa., declared that one of the points mentioned by Dr. Dercum is a very good one: viz., that there is a difference between a general insensitiveness or stupidity, and that due to true anesthesia. One of the main points on which he made the diagnosis in the first case was the convulsive seizures and the delirium and mutism between the convulsive seizures and the cessation of the convulsions. In this case, the patient had never had any such thing as a convulsive attack of any sort before the initial convulsions which ushered in her mutism and the convulsions were of a certain type which in themselves were strongly suggestive of hysteria. In another of the cases reported, a highly typical convulsive seizure (the first in the patient's life), ushered in the delirium. If one is going to stick to text-books, and to classify as cases of hysteria only those which are so usually described these cases could not be admitted; for the delirium is different in duration certainly from that described as part of an attack, although not much in character. Such a position would not allow any addition nor modification of any existing descriptions or classifications of disease.

Life alone begets life, and materialism has no foundation in nature or in reason.—Lord Kelvin.

THE RELATION OF STATES OF APPREHENSION TO CARDIAC DISEASE.*

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Some time ago an author was quoted in my hearing to the effect that in all cases of alienation which showed apprehension there could be found some cardiac lesion. Unfortunately, I have been unable to trace this statement to the original, but it suggested an inquiry into the milder states of apprehension as distinguished from the anxiety neuroses. This inquiry I am at present following out and the few conclusions which are justifiable at the present time will be given here, while any results which may be derived from further research will be published later.

Twenty-five of the most recent admissions to the women's side of the Sheppard and Enoch Pratt Hospital, who are at present under care, have been taken as a series for this inquiry. Five of these twenty-five cases have shown apprehension in a sufficiently marked degree to leave no doubt as to its being present, and no other cases have exhibited it, even though persecutory ideas were found. Three of these five cases showed some abnormality in the heart's action, viz., mitral insufficiency, a reduplicated second sound with murmurish quality of the first and an indistinct first sound. All the cases were depressed, but one patient since recovering from her depression has shown fixed ideas. Of the remaining twenty cases five showed heart lesions but showed no apprehension whatever. The mental condition of these patients was, melancholia, three cases; dementia præcox and acute mania, each one. The remaining fifteen cases showed varying mental conditions, but principally depression. In none of the heart cases was there any failure of compensation.

I have also made a further inquiry on twenty cases at the Johns Hopkins Hospital. The cardiac lesions were varied, the majority being valvular disease, usually with some complication, such as failing compensation, nephritis or arteriosclerosis, but there was one case of angina, one case of acute endocarditis following rheumatism, which showed a soft, systolic murmur, a case of arteriosclerosis with hypertrophy, and a case of aneurism of the aorta. Eleven of these cases admitted that they had fears in either a definite or an indefinite form, the former usually being a fear of death or fear of falling. In three cases the fear was associated with attacks of dyspnea and in one of these the frequent recurrence of these attacks has been succeeded by a loss of the associated feeling of apprehension. Six of the cases occurred in colored men, and all admitted fear except one, a boy with acute endocarditis. In all of these the fear was more apt to be present at night. Both Dr. McCrae and Dr. Emerson told me that they had noticed that colored patients with heart disease were more apt to become apprehensive at dusk, sometimes becoming quite excited. It has been frequently observed by others, I believe, that the apprehension associated with cardiac lesions is more apt to become exaggerated at night, and especially in the colored race.

Head, in his article on "The Mental Changes that Accompany Visceral Disease,"[1] dwells at some length on the difficulty of getting patients in general hospitals to admit that they have mental symptoms, and I am of the opinion that had I been better known to the patients in the Johns Hopkins Hospital whom I questioned as to having fear that I might have found a few more who would admit its presence. At the same time I believe that the majority of those who denied having apprehension were truthful, I was very careful about my questioning, leading up to the subject gradually and putting the question as to having fear in a number of forms so that there could be no doubt of the patient understanding what was meant.

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[1] Brain, Part xcv, 1901.

In his text-book, Dr. Osler does not mention apprehension as associated with cardiac lesions, but in a personal letter states that it is "a pretty common symptom in heart disease, being especially common in the neurasthenic forms." It seems to me that this shows the general feeling of the clinician toward these associated conditions, that although it is often present it is a nervous phenomenon which can probably be explained by the personal individuality or peculiarity of the patient. This seems to be the opinion of others, as Gibson[2] narrates the case of a man who for years had suffered from tachycardia and had associated with this agoraphobia. Gibson considers the persistent tachycardia due to personal peculiarity, and states that in such cases there is usually some associated mental symptoms. In the same lecture he speaks of the mental distress associated with tremor cordis, caused by the sensation "as if the heart stopped and might not recommence its action again." There is a great deal of anxiety attendant on this condition and the patient shows apprehension in his facial expression. A feeble, fluttering action of the heart may be demonstrated both by palpation and by auscultation. It must be remembered that this condition is quite different from palpitation, both in its physical manifestation and its cause, for tremor cordis is probably produced by nervous disturbance but never by psychical excitement, while palpitation is frequently brought on by some emotional disturbance. In palpitation there seems to be no doubt that there is a loss of vagus control. We all know that with palpitation there is often present a feeling of anxiety and associated there may be ringing in the ears, flashes of light, deep, sighing respirations, and sometimes giddiness. The force, as well as the rate. is increased.

Stransky,[3] after a study of the anxiety neuroses and their pathogenesis, is of the opinion that there must be a predisposed brain and a pathologic sensation acting in the region of the vagus in order to have apprehension associated with cardiac disease. This seems to me to sum up our present knowledge of these associated conditions, but I feel that it is not exact enough to be satisfying. The symptoms as observed in the colored race would seem to me to point to personal peculiarity, while the almost constant presence of apprehension in the neurasthenic heart cases seems to me to indicate a pathologic condition of the vagus control.

I hope to follow up this investigation more carefully. Many points have suggested themselves about which I am not able to speak at present. There seems to be little doubt that the physical symptoms present in our cases during the attacks of apprehension are similar to those which have been carefully studied in the anxiety neuroses, but more investigation is needed in these mild cases of apprehension.

The conclusions which I wish to make are:

1. The cardiac lesion is not the primary factor in causation of the associated state of apprehension.
2. For want of a better term, what we call the idiosyncrasy of the patient is largely responsible for apprehension associated with cardiac lesions.
3. In neurasthenic types a want of vagus control is an important etiologic factor.
4. Our knowledge of this subject is not yet exact enough. On this last point let me urge you to urge on your friends who are engaged more actively in clinical medicine investigation of this condition of apprehension in their heart cases.

SPASTIC DIPLEGIA FOLLOWING PERTUSSIS.*

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PHILADELPHIA.

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History.—The patient, a girl of 30 months, was brought to the clinic for nervous diseases at the St. Agnes Hospital in February, 1903. The mother stated that 8 months previously (May, 1902) the child had contracted pertussis, which lasted for 3 months. At the end of the first month of the disease the patient began gradually to lose the power of walking. Her mother first noticed that she became awkward, stumbled easily, and was very uncertain on her feet. By degrees the inability to walk increased until at the end of 4 months she could not walk unassisted. About this time the mother noticed that the child had nystagmus, but she had noted no other symptom until she brought her to the clinic 4 months later.

Family History.—The family history of the child was excellent. The parents were healthy young people, and there was no history of nervous disease in their families. This was the only child and the mother had never had any miscarriages. The child was delivered normally, the head presenting, after a pregnancy of nine months and one week. No instruments were employed, and there was no injury to the head. The child was reared on the breast and passed through her early infancy up to the age of 21 months without any of the usual digestive disturbances and without contracting any other disease than the one mentioned above. She developed in all ways normally, except that she did not walk until the nineteenth month.

Examination and Course of the Disease.—I saw the patient first in February, 1903, which was 8 months after the onset of her nervous disease. At this time she was fairly well preserved, intelligent, understood everything that was said to her, and could talk plainly. Her head was well formed; her palatal arch not unduly high, and there was an absence of the other physical defects which characterize the mentally deficient. In fact, there seemed to be every indication that the child was normal at birth, and had developed properly until the appearance of the weakness in her legs. The fontanelles had been closed since the end of the first year; the heads of the long bones were slightly enlarged, and some, though not marked, beading of the ribs was observed. When placed on the feet she sought at once for support, and would have fallen without it. Any attempt to walk unassisted was futile and developed a transient rigidity of both legs. When supported on each side by a person, her efforts to walk showed a tendency to cross-leg progression. The legs were slightly spastic at this time, though not always so. Often the test failed to show any stiffness whatever. Again, at the same examination, spasticity was present during a crying spell or on making voluntary effort. There was a tendency to hyperflexion of the feet, and both big toes were hyperextended. At this time the arms were tussis is largely taken up with reports of this condition. There have not been, however, a great many cases reported with autopsy. This is partly due to the fact that the prognosis in these cases is good. In 38 cases collected by Schreiber[27] up to 1899 only 10 were verified by autopsy. His deductions, I believe, will not hold good at the present time. From a study of these 38 cases he concluded that in most instances the hemorrhage is into the meninges, but may occur in the substance of the brain, either as capillary hemorrhages or in the form of hemorrhagic encephalitis. Cerebral hemorrhage occurred most frequently in children from 2 to 4 years of age; the youngest being 10 months and the oldest 10 years. The hemorrhage occurred usually during a severe paroxysm. He attributes the occurrence of cerebral hemorrhage in pertussis to increase in the blood pressure and to venous engorgement. Many cases of a similar character have been described by Bernhart,[28] Sachs,[12] MacKerron,[29] Neurath[2] and Jarke.[1] Hochenbach[23] collected 23 cases in which a diagnosis of brain hemorrhage was made with 9 autopsies. In 5 cases the hemorrhage was into the white matter, in 2 into the cortex, and in 2 other cases between the dura and the pons.

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[2] The Nervous Affections of the Heart, second series, Edin. Med. Jour., vol. xiii, p. 334.

[3] Monatsschrift fur Psychiatrie und Neurologie, vol. xiv, No. 2, August, 1903.

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Hockenjos[17] collected 41 cases of cerebral hemorrhage, and reported one case of his own. In only 11 of these was there an autopsy. Hemorrhage into the meninges was observed in 4 cases; into the cortex in one case; into the white substance in 5 cases; and undetermined in 1 case. He concludes that hemorrhage is most frequent under 6 years of age, and that the meninges is the site of preference for the hemorrhage.

Paul Valentine[30] collected from the literature 83 cases of nervous disturbances occurring during pertussis. Of these 16 were examples of monoplegia, 40 were hemiplegia, while only 5 or 6 cases were instances of paraplegia. He believes that the prognosis of paralysis in pertussis is very grave. Of 64 cases there were 14 who died, 22 who remained paralyzed, while the rest recovered almost completely.

Cases have been reported which came to autopsy without any—or only insignificant—pathologic change. For instance, Blache's[31] case only showed slight engorgement of the brain and spinal meninges. He refers specially to the case of West[32] and Wiesinger, in which the autopsy showed no pathologic change of the brain. Henoch[33] found some hyperemia of the brain in a child who had suffered from symptoms of meningitis. This was also true of a case of Jacobson's,[34] in which the child exhibited a left hemiplegia.

I have been able to collect in all only 20 cases in which an autopsy has been made. In Marshall's[35] case there was hemorrhage into the substance of the brain. The hemorrhage in Reimer's case was between the dura and the skull, as was also that of Cazin.[36] In the case of Barnier[37] (quoted by Barthez and Rilliet[26]) the hemorrhage was into the meninges. In Hauner's[37] case a large vessel in the brain was ruptured, and there was also hemorrhage into the arachnoid. Dauchez[38] reported a case of cerebral hemorrhage in a tubercular child. At the autopsy there was found a hemorrhagic area over the cortical surface of the left hemisphere, occupying the fissure of Rolando and the two frontal and parietal convolutions. In Stiebel's[39] case there was a large exudate in the arachnoid of the anterior lobes, and the gyri were filled with a grayish yellow substance. On section of the hemispheres hemorrhagic points were visible, and the ventricles were enlarged. External to the right ventricle there was extravasation of blood and some red softening around it.

Furbinger[40] describes a case in which there was capillary hemorrhage of the brain and cord, and also of the white substance. Strümpell[41] (quoted by Hockenjos[17]) reported a case in which there was capillary hemorrhage into the brain.

In Vidal's[42] case there were small hemorrhages of the white substance of the brain which were confluent in the occipital lobe.

Hockenjos[17] reported a case in which hemorrhage of the floor of the left ventricle and punctiform hemorrhage of the pons were observed.

Jarke[1] described a case of hemiplegia in which the autopsy revealed the presence of inflammatory foci thickening and infiltration of the vessel walls, the presence of two small foci of softening in the frontal and parietal convolutions, symmetrical in character, a perivascular infiltration, and a diapedesis of white blood corpuscles.

In Thomas's[43] case there was hemorrhage into the anterior portion of the medulla and overfilling of the vessels of the meninges.

In Blache's[31] case there was only slight engorgement of the meninges, brain and spinal cord.

West[32] reported a case of convulsions in which there was no change visible postmortem.

In Henoch's[33] case, which was clinically one of meningitis, there was found postmortem only hyperemia of the brain.

In Guibert's[44] case (cited by Schreiber[27]) there was no pathologic change observed. In a case reported by Cornelius May,[24] in which there were clonic convulsions, only edema and hyperemia of the brain were observed postmortem.

In Jacobson's[34] case of hemiplegia no pathologic change was found in the nervous system.

Simoninis[45] reported the case of a girl of 6 who exhibited bulbar symptoms, and the section showed hemorrhage into the brain.

Luce[46] cited a case in a boy of 5 who developed left hemiplegia. The autopsy showed the presence of hyperemia, and in the medulla some recent degeneration, as shown by the Marchi method. There was no perivascular hemorrhage, and no change in the blood vessel walls could be demonstrated.

Of these 21 cases—	Cases.
Hemorrhage occurred into the brain in	7
Hemorrhage occurred between dura and skull in	2
Hemorrhage occurred into the meninges in	1
Hemorrhage occurred into the substance of the brain and in meninges in	2
Capillary hemorrhage occurred in	2
Hyperemia occurred in	4
No pathologic change was found in	3

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[27] Schreiber: Archiv f. Kinderheilk., 1899, p. 1.
[28] Bernhart: Deut. med. Woch., 1896, No. 20.
[29] MacKerron: British Med. Jour., 1897, No. 21.
[30] Valentine: Abstr. of Thesis in Lancet, 1902.
[31] Blache: Schmidt's Jahrbuch, vol. i, p. 307.
[32] West: British Med. Jour., 1889, No. 1, p. 157.
[33] Henoch: Vorlesung. Kinderkrank., 1903.
[34] Jacobson: Deut. Zeitschr. f. Nervenheilk., 1893, No. 4, p. 256.
[35] Marshall: Virchow-Hirsch, vol. ii.
[36] Biedert: Lehrbuch f. Kinderheilk.
[37] Barnier: Quoted by Barth and Rilliet.
[38] Danchez: Prog. Méd., 188 No. 12, p. 548.
[39] Stiebel: Journal f. Kinderheilk., 1856, No. 26.
[40] Furbinger: Quoted by Schreiber.
[41] Strümpell: Quoted by Hockenjos.
[42] Vidal: Prog. Méd., 1885, No. 2, p. 270.
[43] Thomas: Schmidt's Jahrbuch, 1835, p. 139.
[44] Guibert: Quoted by Schreiber.
[45] Simoninis: Schmidt's Jahrbuch, v. 273, 1902, p. 51.
[46] Luce: Deut. Zeitschr. f. Nervenheilk., 1898, p. 272.

These statistics do not agree with the statements made by Schreiber, who, in 10 autopsies, found that the hemorrhage occurred in most cases into the meninges. In Hagenbach's[23] statistics, based on 23 cases collected from the literature with 9 autopsies, he found in 5 of these 9 cases which came to autopsy that the hemorrhage was into the white substance, thus agreeing with the conclusions to which I have come in my statistics.

OTHER LESIONS OF THE BRAIN AND SPINAL CORD.

Pertussis is a known cause of encephalitis, though probably not a frequent one. Nothnagel[47] states briefly that encephalitis may occur after whooping cough, as well as after the infectious diseases, and believes that cases like those of Henoch,[33] Fritzsche and Troitzky[16] belong to this class. Richardiere[48] (quoted by Marie) reported one case of "sclerosis encephalique."

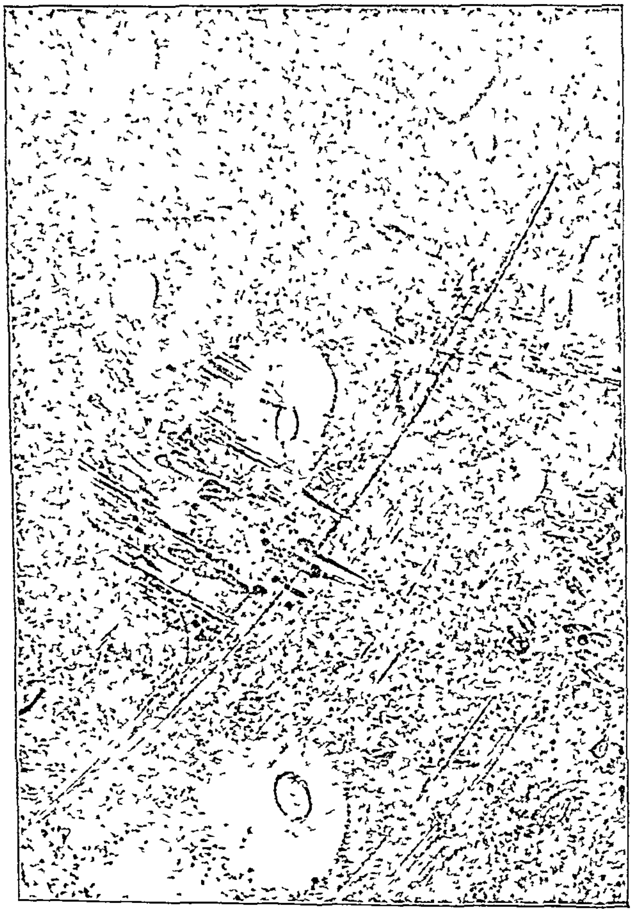

Fig 1 —Cortex, showing distended perivascular spaces, round cell accumulations and obliterated vessels

Cases of spastic diplegia like that reported in this paper are rare in the literature; in fact, we can find but one—that reported by Sachs, which occurred in a child of 13 months who developed a gradual paralysis of both sides of the body, athetosis, increased reflexes, a high grade of imbecility, and defective speech. Unfortunately in this case there was no autopsy. Sachs,[12] who has studied the question of cerebral hemorrhage in children very carefully, states that whooping cough and pneumonia may frequently be causal factors. Out of 105 autopsies he found that in 23 cases of diplegia the lesions in 19 cases were atrophy, sclerosis and cysts, and in 4 cases there was present a porencephalon. In most cases of lobar sclerosis he states that the primary lesion completely disappears, and it is impossible to discover where the sclerosis took its origin.

Bernhardt[28] reported an interesting case in a child of 5 who, after a severe paroxysm of coughing, suddenly became stiff in the lower extremities, so that standing and walking were quite impossible. There was no loss of consciousness, no convulsions, and no involvement of the arms The plantar reflexes were increased, and the feet were held in a position of plantar flexion. There was no foot clonus nor muscular atrophy. Some slight disturbance of sensation was observed, and at the onset there was some involvement of the bladder functions. All the symptoms finally disappeared and the patient recovered The author expresses the opinion that the condition was due to hemorrhage into the spinal cord.

A case of Michell's[49] deserves a passing mention here. In his case there was a transient monoplegia of the left arm. The patient recovered entirely in 8 days. Luisade[50] described a case of paraplegia in a girl of 5 who finally recovered. In Hagedorn's[51] case there was first paraplegia, ptosis and spasm of the facial muscles, finally all the limbs were paralyzed and the patient died. There was no autopsy. Mackey[52] cites a case of Landry's paralysis with recovery. Hydrocephalus has followed pertussis in one case reported by Lombard[53] (Hochenbach).

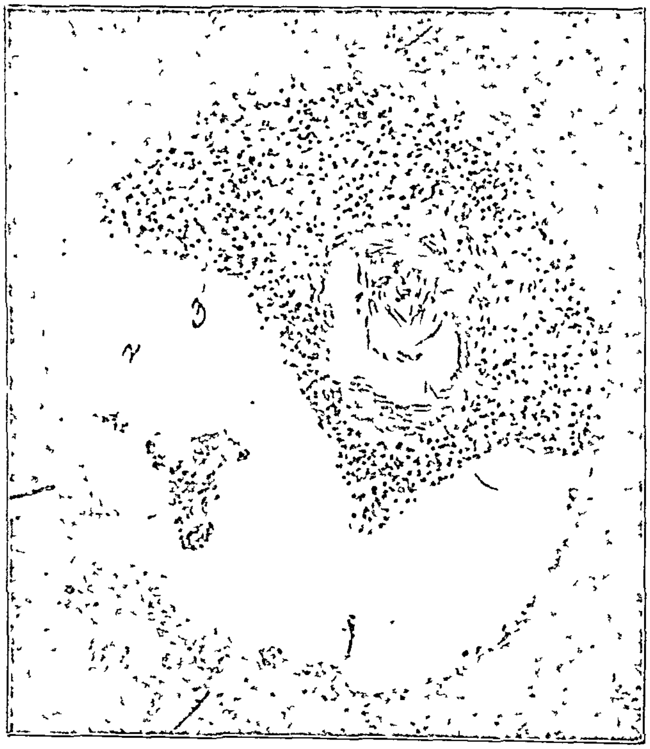

Fig 2 —1 Lumen of a vessel 2 Perivascular space, greatly distended 3 Round cells Around the spaces are seen numerous granular cells (Marchi method)

PERIPHERAL NERVES.

We can find only one case that belongs under this heading, that reported by Moebius,[4] of a child of 3 who developed, first, paralysis of the legs, then of the arms and neck muscles, and finally of the diaphragm. He believed that the case was a toxic action analogous to that which produces paralysis in diphtheria and scarlet fever. The child recovered completely. This is the only case reported that pointed to involvement of the peripheral nerves.

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[47] Nothnagel · Specielle Path et Therap, vol ix, 1901.
[48] Richardiere: Quoted by Marie.
[49] Michell: Thèse de Paris, 1891.
[50] Luisade: Schmidt's Jahrbuch 1899, No 261, p 232
[51] Hagedorn: Schmidt's Jahrbuch, 1903, No 273, p 51
[52] Mackey: Brit Med Jour., Aug 26, 1884.
[53] Lombard: Quoted by Hochenbach

NEUROSES.

Epilepsy has followed pertussis, and Theodor[54] and Steffen[13] state that chorea may also be a complication. Steffen believes that in the latter case it is probably the result of some focal brain lesion.

Several theories have been advanced to explain the occurrence of paralysis. Kassirer,[55] Marie[56] and Moebius[4] have claimed that the paralysis is due to infection. Moebius believed that it is the result of a toxin analogous to that of diphtheria. Neurath,[2] and particularly the French authors also, defend the toxic theory. Furbinger[40] believes that the blood vessel walls become altered by the toxin and are thus more susceptible to the increase in blood pressure.

Biedert[36] and Hagenbach look on whooping cough not as a general infection like scarlet fever and measles, but believe that it is a local infection of the bronchi in which the cramp-like attacks of coughing may be attributed to the irritation of the superior laryngeal nerve.

In a case reported by Henoch,[33] in which there were *convulsions and strabismus, but in which the autopsy* revealed only hyperemia of the brain and meninges as well as hemorrhages, he believed the hemorrhages were due to carbon dioxid intoxication.

Luce[57] believed that in acute attacks of hemiplegia occurring during the course of pertussis, either a meningeal hemorrhage is found or there is no anatomic basis for it. He claimed that it was not proven that an isolated hemorrhage into the internal capsule or elsewhere in the pyramidal tracts could occur as the result of increased blood pressure. He looks on the occurrence of hemiplegia in these cases as due to CO_2 intoxication.

I believe that in my case the widespread lesion in the cortex was the result of a toxin acting on the vessels and setting up an inflammatory process. This process resulted in the destruction of fibers here and there in the cortex, especially in the paracentral region, in consequence of which there followed a degeneration of the pyramidal tracts. The small hemorrhages in the cortex were probably due to the convulsive attacks which preceded death.

To Dr. W. G. Spiller is due my sincere appreciation for his assistance in the study of the sections.

DISCUSSION.

Dr. T. H. Weisenburg, Philadelphia, reported the case of a canary bird which was the inmate of a house where three children were sick with whooping cough. The bird had been sick for about five weeks; previously he had been perfectly well. He had spells of coughing and these were more frequent at night and would keep him from sleeping. He had attacks of panting, associated with coughing and choking. He died of diarrhea after glycerin had been placed in his drinking water. The brain was removed and sections stained by the hemalum-eosin stain showed the blood vessels to be very much congested; these stood out prominently and diapedesis of the red blood cells could be *easily seen*. This is an interesting finding in conjunction with Dr. Rhein's case where hemorrhages were marked.

Dr. R. C. Moore, Omaha, Neb., stated that in severe nervous troubles, following an acute disease, the question arises whether the nervous disorder is due to anything mechanically connected with the disease or whether it is due to the toxins. Of course, the sequelæ of scarlet fever are of toxemic origin, but in this case the cerebral hemorrhage may possibly have been caused by the mechanical action due to the severity of the cough. In Dr. Moore's practice several years ago a little child about a year and a half old, during a severe attack of whooping cough, became totally blind. An ophthalmoscopic examination showed no disease of the eyeball, retina or anything connected with them. Therefore, the lesion must have been central. There was no spasm and the child developed no other severe symptoms. The lungs were normal and the child finally recovered. The probability is that in this child's brain there was a condition of those minute hemorrhages as described by Dr. Rhein, but the condition was not sufficiently severe to cause a fatal termination; the natural recuperative powers removed the results of the disease. Dr. Moore considered at that time that the child's condition was probably due to the severity of the cough, and that the products of the microorganism of the disease had nothing whatever to do with it. Very likely in Dr. Rhein's case the slight hemorrhages were due to the same cause.

Dr. John H. W. Rhein said that it would be interesting, if possible, to study the effect of whooping cough on the nervous system of the lower animals. After a brief review of the literature he has been unable to discover any data on this subject.

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54. Theodore: Arch. f. Kinderheilk., 890, p. 219.
55. Kassirer: Centralbl. f. Kinderheil , 1896, p. 37.
56. Marie: Progrès Méd., 1885, p. 16
57. Luce: Deutsch. Zeitschr. f. Nerven llk., 1898, p. 272.

ACUTE INTESTINAL SURGERY, WITH REMARKS ON TECHNIC.*

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ST. LOUIS.

There is a class of abdominal cases which may justly be considered acute. Acute for the reason that the indications for immediate surgery are mandatory and in which the mortality largely depends on the time of operation and the technic of the work. Under this heading I wish to discuss:

1. Penetrating gunshot and stab wounds of the abdomen.
2. Severe abdominal contusions associated with rupture of the intestines or with other visceral injuries.
3. Strangulated hernia.

I shall confine myself as closely as possible to a consideration of the operative technic.

PENETRATING GUNSHOT AND STAB WOUNDS OF THE ABDOMEN.

At the last meeting of this Association I presented in detail a series of cases of gunshot and stab wounds of the abdomen on which I had operated at the St. Louis City Hospital. In that paper I endeavored to show the impossibility of determining the damage done to abdominal viscera by a bullet or knife wound penetrating in character by any known method save exploratory section. As my experience grows I am convinced that the conclusions arrived at in that paper were correct. Assuming that we accept the statement that all penetrating wounds should be explored, as is agreed by the majority of surgeons who have had any actual operative experience in this work, the technic of the work is well worthy of consideration and should be fully discussed.

The operation itself may be divided into: (a) Examination of wounds; (b) incision; (c) control of hemorrhage; (d) search for visceral injuries; (e)

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* Read before the Mississippi Valley Medical Association, 1904, at Cincinnati, Ohio.

method of repairing injuries to viscera; (f) irrigation and drainage; (g) closure of wound.

It goes without saying that the patient should be carefully prepared before any attempt is made to investigate the extent of his injuries.

(a) The wound of entrance, and that of exit (if one exists), should be noted. The skin at wound of entrance is incised sufficiently to admit the finger; the wound is then traced and if it is found to penetrate the abdominal wall perforation should always be assumed and exploratory section proceeded with.

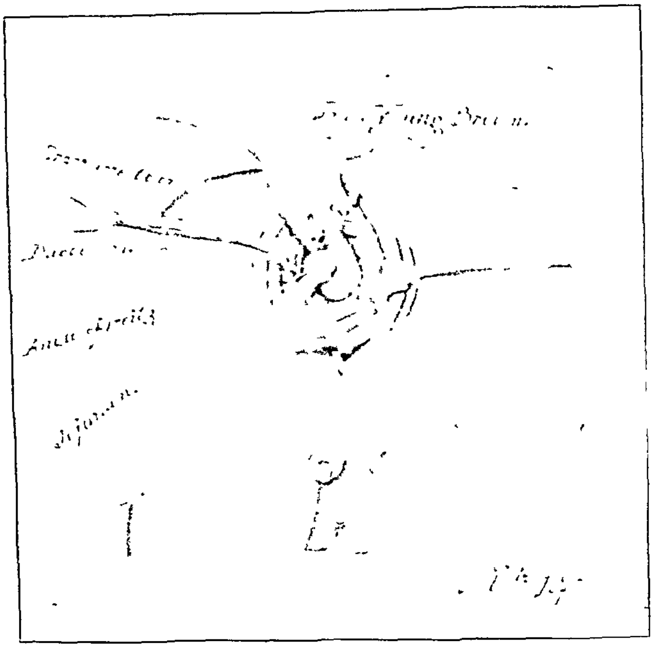

Fig. 1.—Transverse colon thrown back and hand picking up jejunum.

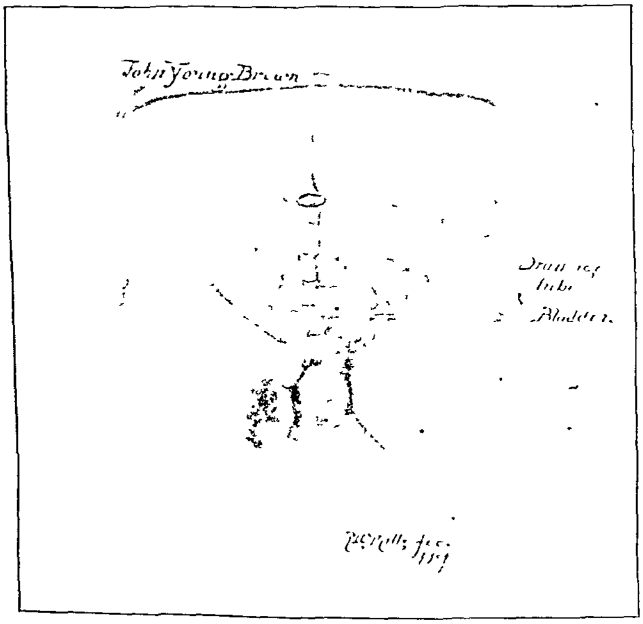

Fig. 2.—Glass drain in cul de-sac of Douglas Patient in exaggerated Fowler position.

(b) As it is necessary in all penetrating gunshot wounds to examine systematically the peritoneal viscera, a median incision is best. This should begin an inch and a half below the ensiform cartilage and extend to two inches below the umbilicus. An incision of this kind gives complete command of the field.

(c) As soon as the peritoneal cavity is opened all sources of hemorrhage should be sought and controlled by ligature. In wounds of the liver and spleen careful gauze tamponade is the best method of controlling hemorrhage, the gauze being brought out through a stab wound made in the region of injury, or through the wound of entrance if possible.

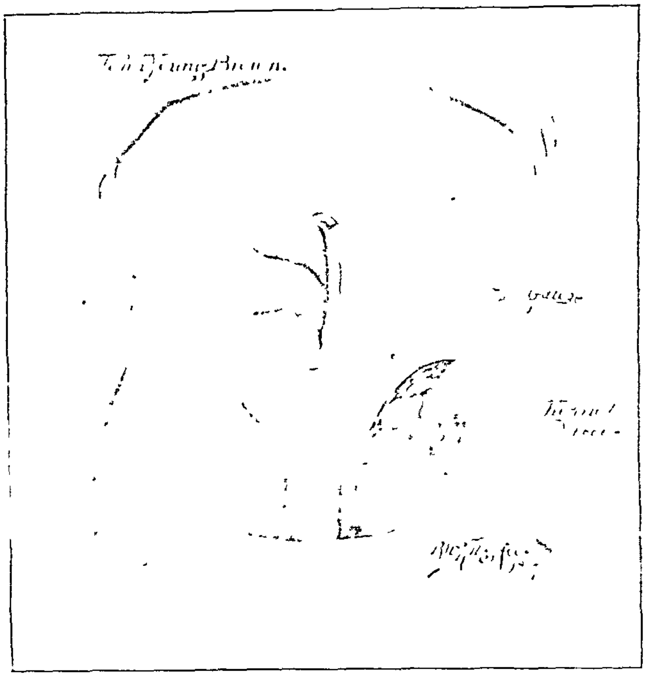

Fig 3.—Gauze in place and gut ready to be delivered through the abdominal incision.

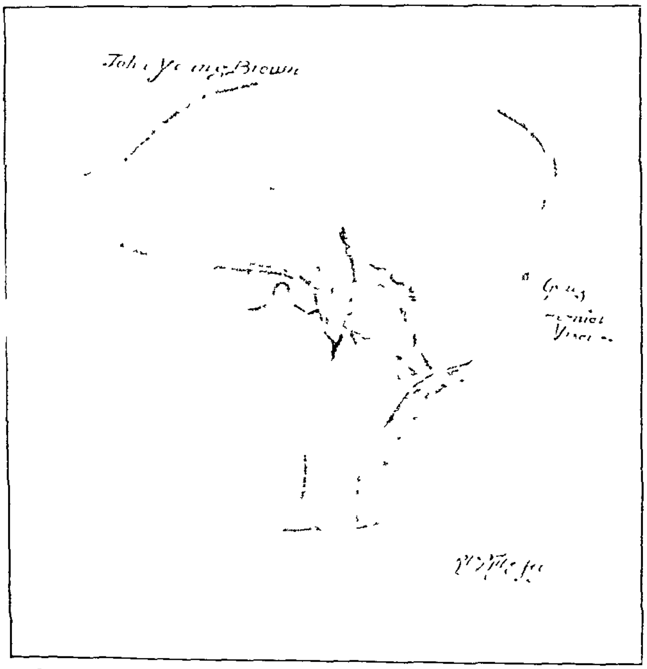

Fig. 4.—Method of delivery of bowel.

(d) In searching for bowel injuries there are two important anatomic landmarks to be observed: first, the angle of Tritz, and second, the ileocecal junction. In order not to eviscerate a patient it is necessary for the surgeon to find at once the jejunum as it comes from under the colon. By throwing the transverse colon back, the jejunum can be picked up, just as is done in gastroenterostomy, and from this point it is followed to its juncture with the cecum, or the search can be reversed by beginning at the ileocecal valve and following the small bowel up (Fig. 1). As the operator goes over the small bowel, the assistant returns the gut, thus exposing only a small section at a time. The large bowel is next examined from the ileocecal juncture to the rectum. In wounds of the stomach, the posterior wall is readily reached by tearing through the omentum and pulling the stomach through the rent. The rent in the omentum is then closed with continuous suture of fine silk. Injuries to the bladder are easily recognized by the use of the catheter and the Trendelenburg posture. A search of this kind precludes the possibility of overlooking bowel injuries.

(e) Wounds of bowel not in too close proximity are repaired either by means of a silk purse-string suture or by a through-and-through silk stitch, and then completed with the Lembert stitch. The location of bowel wounds should be carefully noted. Wounds close to the mesenteric border are of extreme importance, and the same may be said of wounds of the mesentery. We must be assured that the blood supply of the bowel is not interfered with. Where there are multiple perforations in close proximity, or where the blood supply is cut off, resection is imperative. While I am not averse to the suture, I am convinced, from a large experience, that the Murphy button is the ideal method of making an anastomosis in repairing gunshot wounds. It is simple, quick and reliable. My assistant, Dr. Wm. J. Doyle, recently resected six feet of small bowel in a patient, with sixteen perforations of the bowel and six of the mesentery. This anastomosis was made with the button and was quickly accomplished. The patient passed the button on the nineteenth day and has been discharged from the hospital.

(f) Gunshot wounds are about the only class of cases in which I use irrigation. In such cases blood and extravasated bowel contents are invariably found in the peritoneal cavity, and their removal is greatly facilitated by copious irrigation. The apparatus used is the funnel, rubber hose and the irrigating tube of Joseph Price. In addition to the mechanical cleansing effects of the irrigation, the salt solution is rapidly absorbed by the peritoneum and the stimulation thus obtained is well marked in badly shocked patients.

Except in wounds of the liver, pancreas and spleen, gauze is never used. and in these cases it is used to control hemorrhage, and not as a drain. The drainage I have found most effective in these cases is the glass drain placed through a stab wound above the pubes. the tube being placed in the cul-de-sac of Douglas; the patient is then placed in the exaggerated Fowler position and the tube drained by suction (Fig. 2).

(g) The long incision, so necessary for thorough work in these cases, should be carefully closed. As many of these patients are badly shocked, the through-and-through method of closure is the best, because it can be done quickly. I believe, however, that when the condition of the patient will permit the wound should be closed in layers, after the method suggested by Ochsner, namely. catgut for peritoneum and fascia: tension sutures of silkworm gut through skin, muscle and fascia; with horse-hair sutures for the skin. The importance of care in closure has been impressed on me very forcibly in two cases operated on in the last year. One case was that of a policeman on whom I operated, resecting eighteen inches of ileum, in which there were seven perforations. Six days after operation I found his intestines out on the abdomen. I returned them, closing the wound in layers. The second case was that of a man on whom I operated for a gunshot wound of the liver. The hemorrhage, which was severe, was controlled by gauze tampon. Four days after operation his wound gave way, requiring a second closure. Both of these cases we closed through and through at primary operation, owing to the bad condition of the patient, and, while the recovery in each case was satisfactory, such accidents can be avoided by careful closure.

ABDOMINAL CONTUSIONS ASSOCIATED WITH RUPTURE OF BOWEL OR INJURY TO OTHER ABDOMINAL VISCERA.

Abdominal contusions associated with rupture of the intestine and with injury to other abdominal viscera are by no means of uncommon occurrence. Such injuries are among the most fatal the surgeon is called on to treat, for the reason that they are seldom recognized until widespread peritonitis is present. The frightful mortality in such cases was ably discussed in a paper by Curtis.[1] He reported 116 cases occurring prior to 1887. These cases were all treated without operation, and all terminated fatally. Homer Gage[2] collected 85 cases occurring since 1887. Forty-five were not submitted to operation and all died; 40 were operated on, with 17 recoveries. Bottomley[3] discusses abdominal contusion, accompanied and unaccompanied by intestinal injury. His views are based on a careful analysis of 20 cases of undoubted severe intestinal injuries, and he concludes as follows:

"To sum up in a few words, it may be said that at present we have no certain means of distinguishing between a simple abdominal contusion, and one complicated by severe intestinal injury, except through exploratory incision. This, to be of most avail, must be done within a very short time (from three to five hours) after the injury. Having no certain method of diagnosis, and the promptness of the operation being the feature necessary for its success, exploratory laparotomy, combining, as it does, opportunity for a certain diagnosis and the best possible treatment, if injury be present, should be a very early routine measure in all but the most trivial cases of contusion of the abdomen."

Two cases have come under my observation during the last year, from which I have learned a severe lesson.

Case I.—T. M., aged 23, German, was admitted to hospital at 9:30 a. m. Nov. 1, 1903.

History.—Four days prior to admission he was struck in the abdomen with a piece of timber. The blow was a severe one and he suffered, at the time of injury, greatly from shock, which in a measure subsided. Purgatives were freely given, but his bowels failed to move. The usual hot applications were made to the abdomen. When he arrived at the hospital his abdomen was tense, pulse very rapid, features pinched, vomiting continuous. A diagnosis of acute septic peritonitis. the result of probable intestinal rupture, was made.

Operation.—He was immediately prepared for operation, and the abdomen was opened through a median incision four inches long below umbilicus.

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[1] American Year-Book of Medicine and Surgery, 1903, p. 113.

[2] Homer Gage: Ann. Surgery, March, 1902.

[3] Bottomley: Boston Medical and Surgical Journal, Dec. 5, 1901.

On opening the peritoneum fecal matter gushed freely from the incision. The intestines and omentum were highly congested and covered with lymph. Owing to the patient's bad condition, irrigation with hot normal salt solution was begun at once to combat shock. Eighteen inches from the ileocecal valve two perforations of the small intestine were found. These were closed with through-and-through sutures of silk and buried with interrupted Lembert stitches. The peritoneal cavity was thoroughly flushed, a glass drain was placed in pelvis, and a rubber tube drain was placed through stab wounds made in either flank. A rubber drain was also placed in the upper angle of the wound, and the wound left open. One through-and-through silkworm-gut suture only was used to close the abdomen. The operation lasted fifteen minutes, patient taking only 28 c.c. of chloroform. The patient died four hours after operation.

Case 2.—A Greek laborer, age 49, was admitted to hospital Sept. 15, 1904.

History.—An hour before admission he was run over by a wagon, the wheels passing over his abdomen.

Examination.—On admission he was suffering severely from shock; pulse bad, well-marked evidence of internal hemorrhage; no ribs fractured and no injury to pelvic bones. Catheterization showed no blood in urine. There was great tenderness and muscular rigidity over the entire abdomen; pronounced dullness in region of spleen. He was given hypodermoclysis, surrounded by hot bottles and carefully watched. He reacted nicely. Examination later revealed tumor in region of spleen. Five days after the receipt of injury, when all his symptoms pointed to recovery, he suddenly developed symptoms of alarming internal hemorrhage.

Operation.—He was immediately prepared for operation and the abdomen was opened. The peritoneal cavity was found to be filled with blood, the source of hemorrhage being a lacerated spleen. The wound in the spleen was tamponed with gauze and the abdomen flushed with hot saline. The patient died two hours after operation.

Thus is added two more cases to the long list, making up the 100 per cent. mortality the expectant treatment of these conditions has given to us. The first case died of peritoneal sepsis, and the second of hemorrhage. Early surgery would have saved both cases. If we wait for rapid pulse, vomiting and high temperature to develop before operating on such cases, surgery will prove of little avail. In all cases where there is pain, tenderness and muscular rigidity following abdominal contusion, the abdomen should be immediately opened and the proper surgery applied.

STRANGULATED HERNIA.

During the last year I have done primary resection for gangrenous bowel on five cases of strangulated hernia; three of these were inguinal and two were femoral hernia. Of these five, four recovered and one died. The method employed was as follows:

The sac was opened in the usual manner. Before attempting to relieve the constriction, the contents of the sac were carefully cleansed with saline solution and hydrogen peroxid. This was done to prevent leakage of septic material in the peritoneal cavity, after devulsion or division of constriction. A supplementary abdominal incision was made, the gut was then protected with gauze, pulled through the abdominal incision and resected well back into healthy tissue, the anastomosis being made in each case with the Murphy button.

The importance of draining the distended loop above the constriction of its highly septic contents can not be too strongly emphasized. This is best accomplished in the following manner:

As soon as the gut has been delivered through the supplementary incision, the bowel is clamped off and a glass tube, to which is attached a long rubber hose, is tied in the proximal bowel. The bowel is then allowed to drain through the tube into a receptacle under the table, while the resection is proceeded with. By this method no time is lost and the drainage is accomplished without soiling the field (Figs. 3 and 4).

I believe in all cases where there is any question about the integrity of bowel found in the sac of a strangulated hernia that the gut should be immediately resected. I also believe that the resection can be accomplished best by means of the above described method. Through a supplementary incision wide resection can be quickly made. The anastomosed gut can be returned without danger of damage to stitch or button union at the site of the anastomosis. If necessary, the pelvis can be drained through a stab wound above the pubes. A radical operation can then be done at the hernial site, as was done in all the cases above mentioned. I am well aware that strong theoretical objections can be offered to this procedure. I wish to report it, however, as a method which has proved satisfactory in my hands, claiming no priority for it, but hoping that the cases mentioned will bring out an expression of opinion as to the best method of dealing with a gangrenous gut found in the sac of a strangulated hernia.

VALEDICTORY ADDRESS AT JOHNS HOPKINS UNIVERSITY.*

WILLIAM OSLER, M.D.
BALTIMORE.

As this is the last public function at which I shall appear as a member of the university, I very gladly embrace the opportunity which it offers to express the mingled feelings of gratitude and sorrow which are naturally in my mind—gratitude to you all for 16 years of exceptionally happy life; sorrow that I am to belong to you no more. Neither stricken deeply in years nor damaged seriously by illness, you may well wonder at the motives that have induced me to give up a position of such influence and importance; to part from colleagues so congenial, from associates and students so devoted, and to leave a country in which I have so many warm friends and in which I have been appreciated at so much more than my real worth.

It is best that you should stay in the wonder-stage. Who can understand another man's motives? Does he always understand his own? This much I may say in explanation—not in palliation. After years of hard work, at the very time when a man's energies begin to flag, and when he feels the need of more leisure, the conditions and surroundings that have made him what he is and that have molded his character and abilities into something useful in the community; these very circumstances insure an ever-increasing demand upon them, and when the call of the East comes, which in one form or another is heard by all of us, and which grows louder as we grow older, the call may come like the summons to Elijah, and not alone the plowing of the day, but the work of a life, friends, relatives, even father and mother, are left to take up new work in a new field. Or, happier far yet, if the call comes, as it did to Puran Das in Kipling's story, not to new labors, but to a life "private, unactive, calm, contemplative."

THE LOSS OF INDIVIDUALS.

There are several problems of university life suggested by my departure. It may be asked in the first place whether metabolism is sufficiently active in the professoriate body; is there change enough? May not the loss of a professor bring stimulating benefits to a university? We have not here lost very many—this is not a university, Mr. President, that men care to leave—but in looking over its history I do not see that the departure of anyone has proved a serious blow.

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*Delivered at the annual commencement exercises, Feb. 22, 1905.

It is strange of how slight value is the unit in a great system. A man may have built up a department and have gained a certain following, local or general, nay, more, he may have had a special value for his mental and moral qualities, and his fission may leave a scar. even an aching scar, but it is not to be for long. Those of us accustomed to the process know that the organism as a whole feels it about as much as a big polyzoon when a colony breaks off, or a hive of bees after a swarm—'tis not indeed always a calamity; oftentimes it is a relief.

Of course, on a few the sense of personal loss falls heavily; the faculty of getting attached to those with whom we work is strongly developed in most of us, and some will realize the bitterness of the lines:

> Alas! that all we loved of him should be
> But for our grief as if it had not been.

HIS HEART ALL CICATRICES.

But to the professor himself these partings belong to the life he has chosen. Like the hero in one of Matthew Arnold's poems, he knows that his heart was not framed to be "long loved." Change is the very marrow of his existence—a new set of students every year, a new set of assistants, a new set of associates every few years to replace those called off to other fields! in any active department there is no constancy, no stability in the human surroundings. And in this there is an element of sadness. A man comes into one's life for a few years, and you become attached to him, interested in his work and in his welfare, and perhaps you grow to love him as a son, and then off he goes!—it must be as bad as having a daughter married, leaving you with a bruised heart. After teaching for 30 years and coming into very intimate contact with my assistants, my heart is all cicatrices, covered with one big "milky patch." (The medical students will appreciate the allusion.)

TOO LONG IN ONE PLACE.

The question may be asked whether as professors we do not stay too long in one place. It passes my persimmon to tell how some good men—even lovable and righteous men in other respects—have the hardihood to stay in the same position for 25 years. To a man of active mind too long attachment to one college is apt to breed self-satisfaction, to narrow his outlook, to foster a local spirit and to promote senility. Much of the phenomenal success of this institution has been due to the concentration of a group of light-horse intellectuals, without local ties, whose operations were not restricted and whose allegiance indeed was not always national, yet who were willing to serve faithfully in whatever field of action they were placed.

And this should be the attitude of a vigilant professoriate. As St. Paul preferred an evangelist without attachments, as more free for the work, so in the general interests of higher education a university president should cherish a proper nomadic spirit in the members of his faculties, even though it be on occasions a seeming detriment. A well-organized college trust could arrange a rotation of teachers which would be most stimulating all along the line. We are apt to grow stale and thin mentally if kept too long in the same pasture. Transferred to fresh fields, amid new surroundings and other colleagues, a man gets a fillip which may last for several years.

WOULD SWAP COLLEGE HEADS.

Interchange of teachers, national and international, will prove most helpful. How bracing the Turnbull lecturers have been, for example! It would be an excellent work for the University Association, which met here recently, to arrange this interchange of instructors. Even to swap college presidents now and then might be good for the exchequer. We have an excellent illustration of the value of the plan in the transfer this year of Professor Keutgen from Jena to give the lectures here on history. An international university clearing house might be organized to facilitate the work. How delightful it would be to have a return of the mediæval practice, when the professor roamed Europe at his sweet will, or to the halcyon era of the old Greek teachers, of which Empedocles sings:

> What days were those, Parmenides!
> When we were young, when we could number friends
> In all the Italian cities like ourselves,
> When with elated hearts we joined our train,
> Ye sun-born virgins on the road to truth.

YOUNG MEN, MOVE ABOUT.

It is more particularly on the younger men that I would urge the advantages of an early devotion to a peripatetic philosophy of life. Just so soon as you have your second teeth think of a change; get away from the nurse, cut the apron strings of your old teachers, seek new ties in a fresh environment, if possible, where you can have a certain measure of freedom and independence. Only do not wait for a fully equipped billet almost as good as that of your master. A small one, poorly appointed, with many students and few opportunities for research, may be just what is needed to bring out the genius—latent and perhaps unrecognized—that will enable you to do well in an unfavorable position what another could not do at all, not even in the most hopeful surroundings.

INFANTILISM AND PROGERIA.

There are two appalling diseases which only a feline restlessness of mind and body may head off in young men in the academic career. There is a remarkable bodily condition, known as infantilism, in which adolescence does not come at the appointed time, or is deferred until the twentieth year or later, and is then incomplete, so that the childish mind and the childish form and features remain. The mental counterpart is even more common among us. Intellectual infantilism is a well-recognized disease, and just as imperfect nutrition may cause failure of the marvelous changes which accompany puberty in the body, so the mind too long fed on the same diet in one place may be rendered rickety, or even infantile. Worse than this may happen.

A rare, but still more extraordinary bodily state is that of progeria, in which, as though touched with the wand of some malign fairy, the child does not remain infantile, but skips adolescence, maturity and manhood, and passes at once to senility, looking at 11 or 12 years like a miniature Tithonus, "marred and wasted," wrinkled and stunted, a little old man among his toys. It takes great care on the part of any one to live a mental life corresponding to the ages or phases through which his body passes. How few minds reach puberty, how few come to adolescence, how fewer attain maturity! It is really tragic—this widespread prevalence of mental infantilism, due to careless habits of intellectual feeding.

Progeria is an awful malady in a college. Few faculties escape without an instance or two, and there are certain diets which cause it just as surely as there are waters in some of the Swiss valleys that will produce cretinism. I have known an entire faculty attacked. The progeric himself is a nice enough fellow to look at or to play with, but he is sterile, with the mental horizon narrowed, and quite incapable of assimilating the new thoughts of his day and generation.

As in the case of many other diseases, it is more readily prevented than cured, and, taken early, change of air and diet may do much to antagonize a tendency, inherited or acquired. Early stages may be relieved by a prolonged stay at the university baths of Berlin or Leipzic, or if at the proper time a young man is transferred from an American or Anglican to a Gallic or Teutonic diet. Through no fault of the man, but of the system, due to the unfortunate idea on the part of the denominations that in each one of the states they should have their own educational institutions, collegiate infantilism is far too prevalent, against which the freer air and better diet of the fully equipped universities is proving a rapid, as it is the rational antidote.

MENTAL ASTIGMATISM.

Nor would I limit this desire for change to the teachers. The student of the technical school should begin his *wanderjahre* early, not postponing them until he has taken his M.D. or Ph.D. A residence of four years in the one school is apt to breed prejudice and to promote mental astigmatism which the after years may never be able to correct. One great difficulty is the lack of harmony in the curricula of the schools, but this time will correct, and, once initiated and encouraged, the better students will take a year or even two years in schools other than those at which they intend to graduate.

FIXED TERM FOR TEACHERS.

I am going to be very bold and touch on another question of some delicacy, but of infinite importance in university life, one that has not been settled in this country. I refer to a fixed period for the teacher, either of time of service or of age. Except in some proprietary schools, I do not know of any institutions in which there is a time limit of, say 20 years' service, as in some of the London hospitals, or in which a man is engaged for a term of years. Usually the appointment is *aut vitam aut culpam,* as the old phrase reads. It is a very serious matter in our young universities to have all of the professors growing old at the same time. In some places only an epidemic, a time limit, or an age limit, can save the situation.

MEN UNDER FORTY GREAT WORKERS.

I have two fixed ideas well known to my friends, harmless obsessions with which I sometimes bore them, but which have a direct bearing on this important problem. The first is the comparative uselessness of men above 40 years of age. This may seem shocking, and yet read aright the world's history bears out the statement. Take the sum of human achievement in action, in science, in art, in literature—subtract the work of the men above 40, and, while we should miss great treasures, even priceless treasures, we would practically be where we are to-day. It is difficult to name a great and far-reaching conquest of the mind which has not been given to the world by a man on whose back the sun was still shining. The effective, moving, vitalizing work of the world is done between the ages of 25 and 40 years—these 15 golden years of plenty, the anabolic or constructive period, in which there is always a balance in the mental bank and the credit is still good.

In the science and art of medicine there has not been an advance of the first rank which has not been initiated by young or comparatively young men. Vesalius, Harvey, Hunter, Bichat, Laennec, Virchow, Lister, Koch—the green years were yet on their heads when their epoch-making studies were made. To modify an old saying, a man is sane morally at 30, rich mentally at 40, wise spiritually at 50—or never. The young men should be encouraged and afforded every possible chance to show what is in them. If there is one thing more than another upon which the professors of the university are to be congratulated, it is this very sympathy and fellowship with their junior associates, upon whom really in many departments, in mine certainly, has fallen the brunt of the work. And herein lies the chief value of the teacher who has passed his climacteric and is no longer a productive factor; he can play the man midwife, as Socrates did to Thesetetus, and determine whether the thoughts which the young men are bringing to the light are false idols or true and noble births.

CHLOROFORMING SEXAGENARII.

My second fixed idea is the uselessness of men above 60 years of age, and the incalculable benefit it would be in commercial, political and in professional life if, as a matter of course, men stopped work at this age. Donne tells us in his "Biathanatos" that by the laws of certain wise states sexagenarii were precipitated from a bridge, and in Rome men of that age were not admitted to the suffrage, and were called *depontani* because the way to the senate was *per pontem* and they from age were not permitted to come hither. In that charming novel, the "Fixed Period," Anthony Trollope discusses the practical advantages in modern life of a return to this ancient usage, and the plot hinges on the admirable scheme of a college into which at 60 men retired for a year of contemplation before a peaceful departure by chloroform. That incalculable benefits might follow such a scheme is apparent to any one who, like myself, is nearing the limit, and who has made a careful study of the calamities which may befall men during the seventh and eighth decades!

Still more when he contemplates the many evils which they perpetuate unconsciously and with impunity! As it can be maintained that all the great advances have come from men under 40, so the history of the world shows that a very large proportion of the evils may be traced to the sexagenarians—nearly all the great mistakes politically and socially, all of the worst poems, most of the bad pictures, a majority of the bad novels, and not a few of the bad sermons and speeches. It is not to be denied that occasionally there is a sexagenarian whose mind, as Cicero remarks, stands out of reach of the body's decay. Such a one has learned the secret of Hermippus, that ancient Roman, who, feeling that the silver cord was loosening, cut himself clear from all companions of his own age, and betook himself to the company of young men, mingling with their games and studies, and so lived to the age of 153, *puer-*

orum halitu refocillatus et educatus. And there is truth in the story, since it is only those who live with the young who maintain a fresh outlook on the new problems of the world.

THREE PERIODS IN THE TEACHER'S LIFE.

The teacher's life should have three periods—study until 25, investigation until 40, profession until 60, at which age I would have him retired on a double allowance. Whether Anthony Trollope's suggestion of a college and chloroform should be carried out or not, I have become a little dubious, as my own time is getting so short.

SOME HOPKINS HISTORY.

Such an occasion as the present affords an opportunity to say a few words on the work which Johns Hopkins has done and may do for medicine. The hospital was organized at a most favorable period, when the profession had at last awakened to its responsibilities, the leading universities had begun to take medical education seriously, and to the public at large had come a glimmering sense of the importance of the scientific investigation of disease and the advantages of well-trained doctors in a community. It would have been a very easy matter to have made colossal mistakes with these great foundations. There are instances in which larger bequests have been sterile from the start; but in the history of educational institutions it would be hard to name one more prolific than the Johns Hopkins University, and it has not been simply a seed farm, but a veritable nursery from which the whole country has been furnished with cuttings, grafts, slips, seedlings, etc.

It would be superfluous in this audience to refer to the great work which the trustees and Mr. Gilman did in 25 years—their praise is in all the colleges. But I must pay tribute to the wise men who planned the hospital, who refused to establish an institution on the old lines—a great city charity for the sick poor—but gave it vital organic connection with a university. I do not know who was directly responsible for the provision in Mr. Hopkins' will that the hospital should form part of the medical school, and that it should be an institution for the study as well as for the cure of disease.

Perhaps the founder himself may be credited with the idea, but I have always felt that Francis T. King was largely responsible, as he had strong and sensible convictions on the subject, and devoted the last years of his useful life in putting them into execution. As first president of the hospital board he naturally did much to shape the policy of the institution, and it is a pleasure to recall the zeal and sympathy with which he always was ready to co-operate.

It is said that in so few years all of the members of the original board have passed away, the last, Mr. Corner—faithful and interested to the end—only a few weeks ago. They did a great work for this city, and their names should be held in everlasting remembrance. Judge Dobbin and James Carey Thomas in particular, the members of the staff in the early days, remembered with gratitude for their untiring devotion to the medical-school side of the problems which confronted us. To John S. Billings, so long the skilled advisor of the board, we all turned for advice and counsel, and his influence was deeper and stronger than was always apparent. For the admirable plan of preliminary medical study, and for the shaping of the scientific work before the hospital was opened for patients, we are indebted to Newell Martin, Dr. Remsen and Dr. Welch. The present excellent plan of study leading up to medicine, in which the classics, science and literature are fully represented, is the outcome of their labors.

About this time sixteen years ago Mr. King, Dr. Billings, Dr. Welch and myself had many conferences with reference to the opening of the hospital. I had been appointed on January 1, but had not yet left Philadelphia. As so often happens, the last steps in a great organization are the most troublesome, and after some delay the whole matter was intrusted to Mr. Gilman, who became acting director; in a few months everything was ready, and in May the hospital was opened.

I look back with peculiar pleasure to my association with Mr. Gilman. It was both an education and a revelation. I had never before been brought into close contact with a man who loved difficulties just for the pleasure of making them disappear. But I am not going to speak of those happy days, lest it should forestall the story I have written of the inner history of the first period of the hospital. I promise you it is most interesting, full of nice details of which the newspapers know nothing. For example, the loves of the surgeons, the trials of the director, Dr. Hurd, the troubles of the nurses are there set down. I have arranged for its publication in time for the centennial of the hospital, in May, 1989, and from those of you who may then read it I bespeak a kindly consideration and criticism.

At the date of the organization of the hospital the two great problems before the profession of this country were, how to give to medical students a proper education; in other words, how to give them the culture, the science and the art commensurate with the dignity of a learned profession; and, secondly, how to make this great and rich country become a contributor to the science of medicine.

STRICT ENTRANCE REQUIREMENTS.

The conditions under which the medical school opened in 1893 were unique in the history of American medicine. It would have been an easy matter, following the lead of the better schools, to have an entrance examination which guaranteed that a man had an ordinary education, but Miss Garrett's splendid gift enabled us to say, "No; we do not want a large number of half-educated students; we prefer a select group, trained in the sciences preliminary to medicine, and in the languages which will be most useful for a modern physician." It was an experiment, and we did not expect more than 25 or 30 students each year for eight or ten years at least. As is so often the case, the country was better prepared to meet our conditions than we thought, and the number of admissions to the school has risen until we have about reached our capacity. Our example in demanding the preliminary arts and science course for admission to the school has been followed by Harvard, and is to be adopted at Columbia. It is not a necessary measure in all the schools, but there has been everywhere a very salutary increase in the stringency of the entrance examinations.

Before we took up the work, great reforms in the scientific teaching in medicine had already begun in this country. Everywhere laboratory work had replaced to some extent the lecture, and practical courses in physiology, pathology and pharmacology had been organized. We must not forget, however, that to Newell Martin, the first professor of physiology in this university, is due the introduction in this country of practical classes in biology and in physiology. The rapid growth of the school necessitated the erection of a separate building for physiology, pharmacology and physiologic chemistry, and in these departments and in anatomy the equipment is as complete as is required. Of the needs in pathology, hygiene and experimental pathology this is not the occasion to speak. It is sufficient to say that in instruction in the sciences, on which the practice of the art is based, the school is in first-class condition.

The rapidity with which the scientific instruction in our medical schools has been brought to a high level is one of the most remarkable educational features of the past 20 years. Even in small, unendowed colleges admirable courses are given in bacteriology and pathology, and sometimes in the more difficult subject of practical physiology. But the demand and the necessity for these special courses has taxed to the utmost the resources of the private schools. The expense of the new method of teaching is so great that the entire class fees are absorbed by the laboratories. The consequence is that the old proprietary colleges are no longer a profitable venture, certainly not in the North, and fortunately the schools are being forced into closer affiliation with the universities, as it is not an easy matter to get proper endowments for private corporations.

HOW PHYSICIANS ARE MADE.

The great difficulty is in the third part of the education of the student, viz., his art. In the old days, when a lad was apprenticed to a general practitioner he had good opportunities to pick up the essentials of a rough and ready art, and the system produced many self-reliant, resourceful men. Then with the multiplication of the medical schools and increasing rivalry between them came the two-year course, which for half a century lay like a blight on the medical profession, retarding its progress, filling its ranks with half-educated men, and pandering directly to all sorts of quackery, humbuggery and fraud among the public. The awakening came about 30 years ago, and now there is scarcely a school in the country which has not a four-year course, and all are trying to get clear of the old shackles and to teach rational medicine in a rational way.

But there are extraordinary difficulties in teaching the medical student his art. It is not hard, for example, to teach him all about the disease pneumonia; how it prevails in the winter and spring, how fatal it always has been, how frightened of it New York and Chicago have become, all about the germ, all about the change which the disease causes in the lungs and in the heart—he may become learned, deeply learned, on the subject of pneumonia, but put him beside a case and he may not know which lung is involved, as he does not know how to find out, and, if he did find out, he might be in doubt whether to put an icebag or a poultice on the affected side, whether to bleed or to give opium, whether to give a dose of medicine every hour or none at all, and he may not have the faintest notion whether the signs look serious or favorable.

So also with other aspects of the art of the general practitioner. A student may know all about the bones of the wrist—in fact, he may carry a set in his pocket—and know every facet and knob and nodule on them, he may have dissected a score of arms, and yet when he is called to see Mrs. Jones, who has fallen on the ice and broken her wrist, he may not know a Colles' from a Pott's fracture, and as for setting it *secundum arten*, he may not have the faintest notion, never having seen a case.

Or he may be called to preside at one of those awful domestic tragedies—the sudden emergency, some terrible accident of birth or of childhood—that require skill, technical skill, courage, the courage of full knowledge, and if he has not been in the obstetrical wards, if he has not been trained practically, if he has not had the opportunities that are the rights of every medical student, he may fail at the critical moment, a life, two lives, may be lost, sacrificed to ignorance, often to helpless, involuntary ignorance.

HOPKINS' CHIEF HONOR.

By far the greatest work of the Johns Hopkins Hospital has been the demonstration to the profession of the United States and to the public of this country of how medical students should be instructed in their art. I place it first because it was the most-needed lesson; I place it first because it has done the most good as a stimulating example, and I place it first because never before in the history of this country have medical students lived and worked in a hospital as part of its machinery, as an essential part of the work of the wards.

In saying this, heaven forbid that I should obliquely disparage the good and faithful work of my colleagues elsewhere. But the amphitheater clinic, the ward and dispensary classes, are but bastard substitutes for a system which makes the medical student himself help in the work of the hospital as part of its human machinery. He does not see the pneumonia case in the amphitheater from the benches, but he follows it day by day, hour by hour, and he has his time so arranged that he can follow it; he sees and studies similar cases, and the disease itself becomes his chief teacher, and he learns its phases and variations as depicted in the living, and he knows under skilled direction when to act and when to refrain from action, he learns insensibly principles of practice, and he possibly escapes a nickel-in-the-slot attitude of mind, which has been the curse of the profession in the treatment of disease.

And the same with the other branches of the art; he gets a first-hand knowledge which, if he has any sense, may make him wise unto the salvation of his fellows. And all this has come about through the wise provision that the hospital was to be part of the medical school, and it has become for the senior students, as it should be, their college. Moreover, they are not in it on sufferance and admitted through side doors, but they are welcomed as important aids without which the work could not be done efficiently.

The whole question of the practical education of the medical student is one in which the public is vitally interested. Sane, intelligent physicians and surgeons with culture, science and art are worth much in a community, and they are worth paying for in rich endowments of our medical schools and hospitals. Personally, there is nothing in my life in which I take greater pride than in my connection with the organization of the medical clinic of the Johns Hopkins Hospital and with the introduction of the old-fashioned methods of practical instruction. I desire no other epitaph—no hurry about it, I may say—than the statement that I taught medical students in the wards, as I regard this as by far the most useful and important work I have been called on to do.

AMERICAN INVESTIGATORS.

The second great problem is a much more difficult one, surrounded as it is with obstacles inextricably connected with the growth and expansion of a comparatively new country. For years the United States had been the largest borrower in the scientific market of the world, and more particularly in the science relating to medicine. To get the best that the world offered, our young men had to go abroad; only here and there was a laboratory of physiology or pathology, and then equipped, as a rule, for teaching. The change in 20 years has been remarkable. There is scarcely to-day a department of scientific medicine which is not represented in our larger cities by men who are working as investigators, and American scientific medicine is taking its rightful place in the world's work.

Nothing shows this more plainly than the establishment within a few years of journals devoted to scientific subjects; and the active participation of this school as a leader is well illustrated by the important publications which have been started by its members. The hospital trustees early appreciated the value of these scientific publications, and the bulletin and the reports have done much to spread the reputation of the hospital as a medical center throughout the world.

But let us understand clearly that only a beginning has been made. For one worker in pathology—a man, I mean, who is devoting his life to the study of the causes of disease—there are 25 at least in Germany, and for one in this country there are a dozen laboratories of the first class in any one of the more important sciences cognate to medicine. It is not alone that the money is lacking; the men are not always at hand. When the right man is available he quickly puts American science into the forefront.

ANATOMIC WORK.

Let me give you an illustration: Anatomy is a fundamental branch in medicine. There is no school, even amid sylvan glades, without its dissecting-room, but it has been a great difficulty to get the highest anatomy represented in American universities. Plenty of men have always been available to teach the subject to medical students, but when it came to questions of morphology and embryology and the really scientific study of the innumerable problems connected with them, it was only here and there, and not in a thorough manner, that the subjects were approached. And the young men had to go abroad to see a completely equipped, modern-working anatomic institute.

There is to-day connected with this university a school of anatomy, of which any land might be proud, and the work of Dr. Mall demonstrates what can be done when the man fits his environment.

It is a hopeful sign to see special schools established for the study of disease, such as the Rockefeller Institute in New York, and the McCormick Institute in Chicago, and the Phipps Institute in Philadelphia. They will give a great impetus in the higher lines of work in which the country has heretofore been so weak. But it makes one green with envy to see how much our German brethren are able to do.

GERMANY'S GREAT WORK IN INSANITY.

Take, for example, the saddest chapter in the history of disease—insanity, probably the greatest curse of civilized life. Much has been done in the United States for the care of the insane, much in places for the study of the disease, and I may say that the good work which has been inaugurated in this line at the Sheppard Hospital is attracting attention everywhere. But what a bagatelle it seems in comparison with the modern development of the subject in Germany, with its great psychopathic clinics connected with each university, where early and doubtful cases are skillfully studied and skillfully treated. The new department for insanity connected with the University of Munich has cost nearly half a million dollars. One of the four new departments for which one side of the hospital grounds lies vacant, and which I trust will be built within the next 25 years, will be a model psychopathic clinic to which the acute and curable cases may be sent.

For how much to be thankful have those of us who have to share in the work initiated by these two great foundations! We have been blessed with two remarkable presidents, whose active sympathies have been a stimulus in every department, and whose good sense has minimized the loss of energy through friction between the various parts of the machine—a loss from which colleagues are very prone to suffer. A noteworthy feature is that in so motley a collection from all parts of the country the men should have fitted into each other's lives so smoothly and peacefully, so that the good-fellowship and harmony in the faculties has been delightful. We have been singularly blessed in our relationship with the citizens, who have not only learned to appreciate the enormous benefits which these great trusts confer on the city and the state, but they have come forward in a noble way to make possible a new era in the life of the university.

We of the medical faculty have to feel very grateful to the profession, through whose influence and support much of the success of the hospital and the medical school is due; not only the physicians of the city and of the state, who have dealt so truly with us, but the profession of the entire country, and more particularly to that of the southern states, whose confidence we have enjoyed in such a practical way. On a maintenance of this confidence the future rests. The character of the work of the past 16 years is the best guarantee of its permanence.

What has been accomplished is only an earnest of what shall be done in the future. On our heels a fresh perfection must tread, born of us, fated to excel us. We have but served and have but seen a beginning. Personally, I feel deeply grateful to have been permitted to join in this noble work and to have been united in it with men of high yet human ideals.

Special Article.

IMMUNITY.

CHAPTER VI.

THE ANTIBACTERIAL AND THE ANTITOXIC NATURE OF NATURAL IMMUNITY.

In a previous page it has been stated that natural immunity may be either antibacterial or antitoxic. We have seen that the protection afforded by the body surfaces may be effective against both microbes and their toxins, and that local inflammatory processes, although most certainly antagonizing the bacteria, may at the same time have some antitoxic value.

The term natural immunity, however, as indicated in the first section, has a peculiar application to the natural resistance of some species or races of animals to infections to which other species or races are susceptible; and to an unusual individual resistance often seen in members of a given race or species. This condition depends on properties residing in the tissues or fluids of the body, and consequently is independent of any protection which the body surfaces afford. Its presence is demonstrated in the most striking manner by the experimental method, when microbes or toxins are injected directly into the tissues or circulation At the same time every day observation provides many examples.

Natural Antibacterial Immunity.

In determining the antibacterial nature of immunity in a given case there are two conditions which must be proved: 1, that the body cells or fluids are able to destroy the microbe, and that this power is sufficiently strong to make it reasonable that the immunity depends on it; 2, that the immunity does not depend on non-susceptibility to a possible toxin of the microbe, nor on a naturally existing antitoxin.

To prove the first condition, two procedures may be resorted to: First, the microbes are injected into the subcutaneous tissue, the peritoneal cavity or the blood vessels. If the animal does not become ill after a dose which, in proportion to weight, is pathogenic for some other test animal, an immunity is indicated. At a proper interval all the tissues and fluids are examined to determine the fate of the microbes. This may be done by staining the fluids and cells for bacteria and examining with the microscope, or by inoculating culture tubes with the fluids, the growth or non growth of colonies determining whether or not the microbes have disappeared. Examinations of this nature often disclose the fact that many of the bacteria have been phagocytized by the leucocytes while others have apparently succumbed to the germicidal action of serum or plasma. In the event of their disappearance it should also be shown that the disappearance does not depend entirely on excretion through the urine or feces; this is best done by the culture method, but is a difficult technical problem.

Second, the animal's serum or plasma may be mixed with a suspension of the microbes in a number of test tubes, using varying amounts of serum with constant amounts of the bacteria in the different tubes. and at a subsequent period, from three to twenty-four hours later, cultures are made from these mixtures to determine the bactericidal power of the serum. The numbers of colonies which appear in these cultures, minus the number which appear when serum is not added, is an index of the bactericidal power of the serum. If this power is found to be high, it is, in the present state of our knowledge, considered as presumptive evidence that the natural immunity of the animal depends on it It is, nevertheless, a fact that the antibacterial immunity of an animal does not always go hand in hand with the bactericidal power of its serum. A well-known illustration of this is the following: Both the dog and the rat have a rather high degree of immunity against infections with the anthrax bacillus; yet it has been found that the serum of the dog has almost no bactericidal effect on this microbe, while that of the rat has a very strong effect At the same time we should remember that the bactericidal power of the serum does not necessarily represent the entire antibacterial function of the body. In the serum we have none of the body cells, and especially none of the phagocytes, the destructive action of which on some bacteria is well known.

Alexins.

At a time when antitoxic action was not appreciated, Buchner gave the name of alexins (from the Greek, ἀλέξειν, to ward off) to the protective substances of the serum, i. e, to the bactericidal substances, making the observation that they were very labile substances, losing their power spontaneously in a few days when exposed to the air and light, or when they were heated to 55 C. for thirty minutes.

Natural Antitoxic Immunity.

In determining the presence or absence of antitoxic immunity, the toxin of the microbe, of course, must first be in hand. The methods of obtaining toxins will be referred to later. If the animal resists a dose of toxin which, in proportion to weight, produces disease in some other susceptible animal, the tissues or fluids of the first animal may contain antitoxin. It will be indicated later how this result may be obtained even without the presence of antitoxin, the immunity being due to some other obscure cause. If the resistance is referable to the presence of antitoxin, the latter may be detected in the following manner: The animal is bled, its serum collected from the clot, then mixtures of the serum and of the toxin are injected into animals of known susceptibility for the toxin. If the test animal is in this way protected from an otherwise fatal dose of the toxin, it is evidence that the serum contains an antitoxic substance.

Following this method of experimentation, if antibacterial properties are found to the exclusion of antitoxic, the immunity is considered to be antibacterial; and with the converse result it is antitoxic It is, of course, conceivable that in a given case it might be both antitoxic and antibacterial. In dealing with diseases of which the specific microbe is known and cultivated, the existence of antibacterial or of antitoxic substances can usually be found by the methods described. If the etiology is unknown, as in scarlet fever, measles, syphilis, etc., that is, if the virus and its toxin can not be obtained in quantities, the nature of the resistance is not at present open to determination.

Examples are known in which, in spite of rather high resistance on the part of the animal, its serum contains neither strong antitoxic nor antibacterial properties. This relationship exists between a number of animals and such bacteria as the pneumococcus, staphylococcus and streptococcus. Consequently much is yet to be learned concerning natural immunity.

It is seldom that natural resistance is absolute Pasteur found that the great immunity of the chicken for anthrax could be overcome by immersing the animal in cold water, the reduction in body temperature supposedly decreasing the resistance. It was stated in a previous section that physical exhaustion, hunger and exposure to cold may also reduce natural resistance. Pestilence and famine often go hand in hand.

Relative Immunity.

Similarly antitoxic immunity usually is relative. The chicken, which withstands a large quantity of tetanus toxin injected into the skin, muscles or circulation, succumbs when the toxin is injected directly into the nervous tissue. As an illustration of natural immunity to toxins, the following table serves a good purpose. The horse is the most susceptible animal for tetanus toxin. If the minimum fatal amount for one gram of horse weight is taken as a unit this scale of resistance for some other animals is obtained (Knorr):

For 1 gram of guinea pig weight	2 units are fatal
For 1 gram of goat weight	4 units are fatal
For 1 gram of mouse weight	13 units are fatal
For 1 gram of rabbit weight	2,000 units are fatal
For 1 gram of chicken weight	200,000 units are fatal

In view of the high immunity of the chicken against tetanus one may be led to suppose that its serum would contain a large amount of antitoxin, yet experiments show that it possesses practically no tetanus antitoxin. This fact suggests that there is a distinct type of natural immunity which, it is thought, may be independent of both the antibacterial and the antitoxic properties of the animal. It is now thought that the toxic elements of bacteria are chemical substances (very complex, surely) which are able to injure the tissues, i. e., to cause disease only by entering into chemical union with substances which the cells contain.

Cell Receptors.

Such chemical substances or groups pertaining to the cells will be referred to later under the name of cell receptors. Accordingly, if an animal's cells do not possess groups or receptors which are capable of forming a chemical union with the toxin, the latter would be unable to produce injury, i. e., the animal would be immune regardless of all bacterial or antitoxic properties. This condition, however, is not one which is capable of experimental demonstration, at least at present, but the conditions point irresistibly to its existence in some cases.

We are accordingly led to the conclusion that immunity to toxins is not in all cases antitoxic, in the sense that the serum contains demonstrable antitoxin; and likewise that immunity to bacteria is not in all cases antibacterial, in the sense that the serum contains substances which are able to kill the bacteria in test-tube experiments.

There is another factor, however, which may throw light on the type of natural immunity just considered. We know that tetanus toxin causes tetanus through its power of uniting with the nerve cells, and we may consider that tetanus is a very fatal disease primarily because of the vital nature of the tissue which it attacks. Now, if the toxin, instead of uniting with the cells of a vital organ, were to combine with cells of less importance to the economy, as, for example, the cells of the subcutaneous tissue, it is probable that we should have no tetanus. In some of the lower animals there is reason to believe that the toxin of tetanus does unite with such tissue (Metchnikoff). Roux and Borrel believe that the greater degree of immunity which the rabbit has over the guinea-pig is due largely to the fact that the rabbit's liver is able to fix a great deal of the toxin. And Metchnikoff has found that the liver of the scorpion, which has an absolute immunity to tetanus, absorbs the toxin and retains it for months.

Summary.

By way of summary, then, we may say that the natural blood immunity and tissue (histogenic, Behring) immunity depend on the following factors: Bactericidal and antitoxic powers of the serum and plasma, the destructive effect of the cells, especially the phagocytes, on both bacteria and toxins; a possible absolute non-susceptibility in some cases (the absolute non-existence of suitable cell receptors); the overwhelming distribution of the suitable receptors for the toxin in organs of less vital necessity for the individual, thus diverting it from more important organs.

In order that a pathogenic organism produce a progressively fatal disease in a susceptible animal the following obstacles must be surmounted: The strong defenses of the body surfaces must first be overcome; a local inflammatory reaction which may have been excited must first prove itself to be inadequate for the limitation of the infection; there must be an insufficient supply or activity of antimicrobic and antitoxic processes in the body fluids and cells.

In view of the wide variations in the nature of different pathogenic agents it is evident that the defensive means which would counteract one might be inadequate for another; and inasmuch as animals appear to differ as much in the character of their defensive as microbes do in their offensive powers, there is abundant room for the display of the various phenomena of natural immunity and of natural susceptibility with which we have become familiar.

Hemolysins.

In addition to the bactericidal and antitoxic action of many normal serums, they often possess other characteristics which are of the highest interest in the study of immunity. In earlier days it had been noted that the transfusion of blood from one species to another was often fatal to the injected animal. Later investigations showed that this was due to toxic substances in the transfused blood; substances which, above all, destroyed the red blood cells of the injected animal. This action, in which the hemoglobin is dissolved out of the red blood cells, may be reproduced in test-tube experiments by mixing the blood cells of one animal with the serum of another which is toxic (e. g., rabbit blood + goat serum). This is the phenomenon of hemolysis, and the appearance of such a tube is exactly like that seen when blood is mixed with distilled water or even with tap water; i. e., it is a laking of the blood, it loses its opacity and assumes a beautiful cherry-red color. The serum of practically every species contains a hemolytic substance (a serum hemolysin) for some kind of erythrocyte.

Cytotoxins.

Some serums also contain toxic agents for other cells; they are generally called serum cytotoxins. The serum of the eel not only contains a strong hemolysin, or hemotoxin, but also a powerful poison for nervous tissue, neurotoxin. Similarly we have normal leucotoxins for leucocytes, nephrotoxin for kidney tissue, etc.

Agglutinins.

Another property of many normal serums is that which causes the agglutination or clumping of bacteria, as one sees it in the Gruber-Widal test for typhoid. Even normal human serum may agglutinate the typhoid bacillus, but to a less degree than that of a typhoid patient.

Precipitins.

One serum often causes a precipitate in the serum of another animal, or in a bacterial culture filtrate. In considering these facts one becomes conscious of the great complexity of that substance which plays so important a part in immunity and its study—i. e., the blood serum.

(To be continued.)

New Instruments.

COMBINATION QUADVALVE WIRE SPECULUM AND BIVALVE SPECULUM RETRACTOR.[*]

CHARLES F. SPANGLER, M.D.

KANE, PA.

This instrument is designed to facilitate the inspection of the vulva, vagina and cervix. It is especially serviceable in stout patients, or in patients with relaxed vaginal walls, which close in between the expanded blades of a speculum and obstruct the field of vision. It should be constructed of the most durable quality of steel wire. It is easily rendered aseptic, is self-retaining, and is readily introduced and withdrawn without pinching the tissues. The adjustment is such that the distension of the vaginal vault by the expanded blades draws the cervix well forward within the speculum and toward the vulvar outlet.

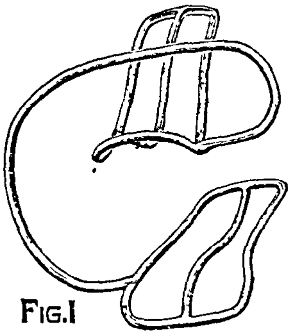

FIG.1

Anteroposterior blades.

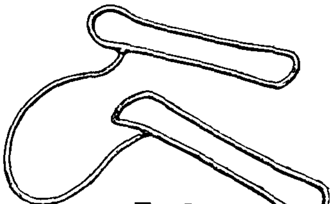

FIG.2

Lateral blades.

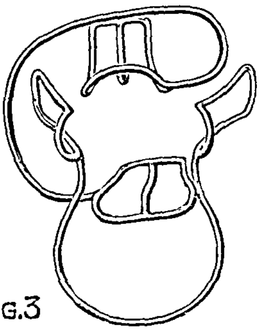

FIG.3

Blades in position.

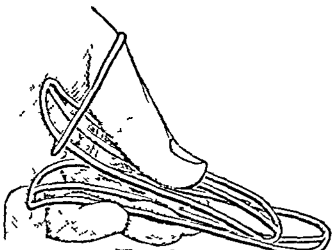

FIG.4

Method of introducing blades.

The spring lop or vulvar extremities of both sections are intended to be permanently expanded and not compressed for introduction. The location of the cervix is ascertained with the index finger, the anteroposterior blades (Fig. 1) are introduced by placing the thumb through the loop on the anterior blade and the fingers of the same hand under the posterior blade, pressing together the distal extremity only as in Figure 4. This movement carries the blades through the vulva, then the pressure on the blades by the fingers is released and the speculum gently pushed into position. The lateral blades (Fig. 2) are next introduced in like manner (Fig. 3).

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[*] Exhibited before the McKean County Medical Society, at Bradford, Pa., Nov. 1, 1904.

In removing the instrument, the lateral blades are removed first by withdrawing them one-half or two-thirds and then compressing the distal ends as when introducing. The anteroposterior blades are sufficiently withdrawn, but the distal ends can be compressed in like manner.

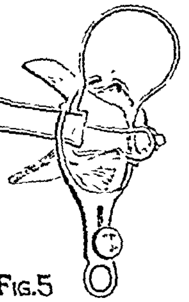
FIG.5

Lateral blades used with ordinary bivalve speculum.

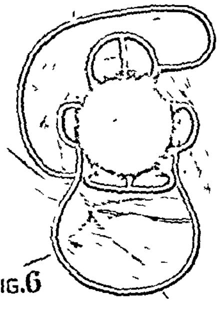
FIG.6

Speculum in position showing cervix.

In office examinations, in many instances, there is difficulty in securing satisfactory exposure of the cervix without the aid of an assistant. The lateral blades or retractors used in conjunction with any suitable bivalve speculum, as in Figure 5, constitutes a thoroughly efficient quadvalve speculum insuring complete exposure of the cervix, particularly in cases of laceration or of enlargement of the cervix or of undue relaxation of the vaginal walls (Fig. 6).

A NEW SAW ESPECIALLY ADAPTED TO CRANIAL SURGERY.*

H. C. MASLAND, A.M., M.D.

PHILADELPHIA.

It is a matter of common knowledge that the present instruments for opening the skull in cranial surgery are crude and unsatisfactory from many points of view, and some months ago, in making certain bone sections, the idea of utilizing the circular saw occurred to me. This new saw which I have devised (Fig. 1) has a handle heavy enough to prevent vibration, and of such shape as to permit a firm grasp with the hand. On the upper part of the handle there is a shoulder to accommodate the thumb. On the lower aspect of the handle are grooves for the fingers, with a ring for the index finger. This ring protects the finger absolutely from the rapidly revolving saw, and also gives a rigid base to brace, when desired, the handle against the head. I originally provided a sharp pin on the lower edge of this ring to press into the bone to anchor the instrument, thereby preventing slipping of the saw in starting the incision. This was found in practice, however, to be unnecessary, the saw proving to be under perfect control. The gauge to regulate the depth of cut of the saw slides at the side of the saw, and is accommodated in a dovetailed groove at the side of the handle. The end of the gauge shaft is threaded and accommodates a nut set in a recess in the handle. By turning this nut, the gauge slides in or out and permits the saw to cut to any depth, to the finest fraction of an inch.[1] The saw is set in a recess in the handle, and this, with the gauge just described, protects the operator's fingers perfectly from any injury. The saw is attached to a short shaft held in place by a set-screw through the top of the nose-piece of the handle. A thread on the other end of the shaft, with a surrounding threaded collar permits of connection with the flexible shaft and its sheath respectively of an electric motor or dental engine.

This instrument will cut as rapidly as desired through bone of any density. I have had the saw revolving 3,400 revolutions a minute with all vibration a negligible quantity. With a circular saw, of course, one must make incisions in a straight line, but a moment's reflection will show that the curved incision has no real advantage, and is but an inheritance of the compulsory cut of the obsolete trephine. With this new saw, a bone flap of any size may be made, with the least possible amount of bone destruction, and without interference with the vitality of the flap. By making a triangular flap, and then instead of cutting through the last angle breaking it off with a chisel, the periosteal connection is preserved. By tilting the saw a beveled cut can be made, thereby securing a shelf and preventing undue sinking of the bone flap after replacement.

This instrument makes an incision of but one millimeter in width, and it can readily be seen that this promises the very greatest likelihood of union occurring in the healing process.

Inasmuch as the saw can be regulated to cut the finest shades of difference in depth we have ample protection against injuring the brain substance. Even when there are internal ridges of bone if the operator does not choose to spring these loose with his chisel, he can pass a delicate curved probe around the ridge between the dura and the skull and then by pressing the dura away cut the obstructing ridge with impunity (Fig. 2).

I have thus far refrained from referring to the inside guard because many surgeons feel confident enough to control their cuts without its use. However, I have devised it in order to answer every requirement that might arise. This guard is composed of the protecting arm with a T-shaped end, a pivot joint and a handle arm. The joint is of the French lock pattern, with a sufficiently wide bearing surface to prevent lateral motion. The French lock permits the ready removal or placing of the guard in position. The handle arm turns up over the instrument to the shoulder where it is operated by the thumb.

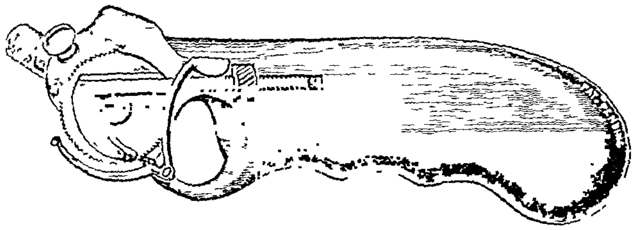
Fig. 1.—Cranial saw.[1]

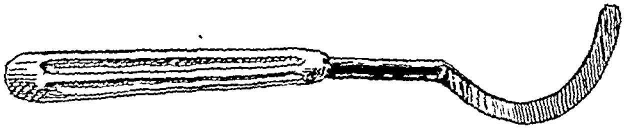
Fig. 2.—Curved probe or inside guard.

To operate this guard an opening is first made to admit the T-shaped tip, the tip is then adjusted in position between the skull and the dura. Constant pressure of the thumb is necessary to keep the tip in proper apposition to the inner wall of the skull. Suitable stops placed at the joint prevent the arm from contact with the teeth, and also from unnecessary motion in the opposite direction. A spring[1] attached to the arm assists the thumb in constantly drawing up the tip toward the saw. It is necessary to withdraw the tip and to readjust it when starting on a new line of incision, as the narrow cut made prevents the guard from turning corners. A contrivance has been devised for transmitting the power through the handle to the short saw shaft. As, however, the mechanism for this is more complicated and less durable, and as by experience the lateral transmission has not proved objectionable, it has appeared wiser to use the simpler construction.

To sterilize the instrument here shown, it is only necessary to unthread and withdraw the guard, loosen the set-screw holding the shaft, and then to draw out the saw and shaft; all the parts are then exposed and can be thoroughly cleansed.

In closing I might say that though this saw was primarily devised for cranial surgery it will no doubt prove useful in operations on various bones. Its usefulness in removing the calvarium at autopsy is apparent.

An instrument dealer thought that this instrument would prove an admirable saw to cut plaster-of-paris casts.

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* Shown before the Philadelphia County Medical Society, Jan. 25, 1905. The discussion by members of the society was printed in THE JOURNAL, February 18, p. 569.

[1] Not desiring to obscure the view the inner guard spring is not shown in Figure 1.

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COCCIDIOIDAL GRANULOMA.

It has been known for some time that the lesions which we speak of as tubercles, which are essentially granulation tissue tumors, are not necessarily the result of the action of the tubercle bacillus. In leprosy, syphilis, glanders, actinomycosis, experimental infection with acid-fast bacilli, and, in fact, in the whole series of diseases known as infectious granulomata, lesions are found more or less closely resembling those of tuberculosis. The recent work of Ophüls[1] shows that similar lesions may also be produced by organisms which closely resemble oidia.

Ophüls reviews the history of the class of cases from one of which he isolated the organism which he studied. The first case described originated in the Argentine Republic, but the cases reported since then have nearly all originated either in California or in the neighborhood of Chicago. Nearly all of the Chicago cases have had local skin lesions, while many of those originating in California have been cases of general infection. The organisms in both classes of cases are evidently closely allied, but it seems doubtful whether or not they are absolutely identical. In the cases of general infection there are two forms of onset, one the cutaneous, the other the pulmonary. The clinical picture varies according to the organs attacked and the degree of general vement. In some cases a skin involvement may exist for years before generalization takes place. The pulmonary cases may run a course suggesting a rather chronic pyemia, or there may be pleurisy with subsequent lung involvement and later sinus formation. In some cases large abscesses form subcutaneously or in the internal organs. The acute cases with multiple skin lesions may strongly suggest glanders. Cases in which the skin lesions predominate may resemble cases of mycosis fungoides, the verrucose form of skin tuberculosis, or there may be rapid infiltration with extensive ulceration.

of thologic lesions in the generalized cases tak miliary nodules like tubercles, and multiple ually miliary, but at times large; these ually scattered throughout the organs. imals presents the same characteristics. nimals glanders may be very closely pigs even the purulent periorchitis ologically the miliary nodules exactly resemble tubercles, and but for the presence of the causal agent could not be distinguished therefrom. Various transition stages between these tubercles and abscesses may be made out, and sometimes areas containing giant cells and more or less resembling fibromyxosarcoma are present. *The different lesions seem to be associated* with the different stages of the parasite, the tubercles with the old parasites, and the abscesses with the sporulating forms. This latter fact is probably due to the setting free during sporulation of chemical substances chemotactic to the leucocytes.

The parasite was originally described as a protozoön on account of the fact that mycelia are not formed except in culture media, and the earlier observers did not cultivate the organism. Since the first successful cultivation by Moffitt and Ash, the organism has been grown a number of times, and its cultural peculiarities are now fully described. It is not a protozoön, but a parasitic fungus belonging to the ascomycetes group. The spore-like bodies are not oidia, but a modification of them, the so-called chlamydospores. The chief characteristic of the organism is that in the hyphæ the protoplasm is concentrated *at certain points in the form of spores, leaving* between the spores segments of the original hyphæ which are empty. The chlamydospores can develop on media into new vegetative forms (hyphæ), or in the body into *fruchtkörper* with endogenous sporulation. The adult form of the parasite is seen in the lesions in the form of spherical bodies as much as 30 microns in diameter with a granular protoplasm and a double contoured membrane. The membrane is thick, being from one-fifth to one-tenth of the diameter of the parasite in thickness. Under favorable circumstances sporulation takes place, as many as a hundred spores being formed in one parasite. The life history of the parasite outside of the body is still unknown, as is its intermediate host, if any such is necessary. Cultures are only to be obtained from abscesses, as the organism fails to grow on media if tissue surrounds it.

MICROBIC LATENCY AFTER INFECTIONS.

Not infrequently it happens that some time after an attack of some acute infectious disease, such as typhoid fever or pneumonia, localized inflammatory processes develop in which are found the bacteria that caused the original infection. A variable period of latency, sometimes, in the case of typhoidal infection, extending over years, may intervene between the general disease and the localized process. This curious survival of bacteria—for we must regard most typhoidal abscesses and many post-pneumonic pneumococcal processes as caused by surviving bacteria rather than by new infections—is very difficult to explain, especially when we consider that the patients concerned must be regarded, in a measure at least, as immunized, having passed through a general and often severe infection with the same bacteria that *later have set up* these local lesions. A somewhat analogous observation is frequently made in connection with diphtheria, in that more or less virulent bacilli may persist, sometimes for months, in an inactive condition in the throats and noses of persons who have recovered from acute attacks of this disease, whereas generally the bacilli disappear in a much shorter time. Perhaps recurrent attacks of erysipelas, of acute articular rheumatism, and of other diseases are caused by the survival in the tissues, in an active or latent form, of the causative agents of the diseases, awaiting some specially favorable moment, or the entrance of some entirely new factor, in order to manifest again their original activity. Malaria also furnishes striking examples of microbic latency in the infected host. Mention may be made, too, of the interesting theories of Baumgarten and Behring in regard to the rôle of latent tubercle bacilli which, entering the body early in life, are assumed to remain inactive for years before the suitable occasion arises for pathogenic action. According to Baumgarten the original infection may be intrauterine, according to Behring it is alimentary, from cow's milk, the bacilli entering by way of the digestive tract. Neither theory seems to have a very broad basis of either observation or experiment, but the clinical history of the various localizations of tuberculosis in man furnishes many examples of the latency and of the persistence of the bacillus, and the recent studies of old, apparently healed tuberculous foci have brought to light many instances of encapsulated bacilli still capable of causing active tuberculosis, at least in animals.

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[1] ol. vi, Nos. 4-6.

Recently this microbic latency has received special consideration from the experimental side. Tizzoni and Panichi[1] have found that virulent pneumococci injected in otherwise fatal doses into animals either immunized or protected by antipneumonic serum may remain alive but inactive in the circulation for weeks and months. The cultures of such latent pneumococci from protected animals show deviations from the usual type and are without pathogenic effect unless specially treated. The Italian investigators assume that in immunized animals, as well as in those injected with antipneumonic serum, two sets of actions result in this case, namely: On the one hand a neutralization of the toxic products set free by virulent pneumococci in the infected organism, to which the usual physiologic disturbances must be ascribed, and, on the other hand, a radical change in the biologic characters of the cocci so that they merely persist without much, if any, pathogenic power. Heretofore, no very pertinent explanation has been given of the survival in latent form of microbes in infected persons. From the observations here referred to, we have reason to believe that, in some cases at least, microbic latency may be due to changes in the nature of the microbe, by virtue of which it sometimes can survive in otherwise highly unfavorable conditions, without manifesting its usual powers unless some special condition arises.

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[1] Centralbl. f. Bakt., 1905, Referate, xxxvi, 25.

THE POSSIBILITIES FROM FELLOWSHIP IN THE COUNTY SOCIETY.

There comes to notice the story of recent proceedings in a county medical society coupled with the statement that the society refused to pass resolutions against secret commissions and contract practice. One who feels defeated and discouraged complains that the new form of organization compels him to retain his membership "in a county society whose morals he may despise." Further, he is quoted as saying: "The present plan is to encourage quackery and a disregard for ethics within the profession, and to chase from the organization those who can not let themselves down to the lower level." Is there reason in this sharp denunciation? Is there any substratum of fact on which to base such dreary pessimisms? Is organization a failure? Is there logic in the conclusions? These are sober questions and they need to be met squarely.[1]

As all reputable physicians in any county are eligible to membership in the county society, it would seem that a county had been found in which a majority favor contract practice and secret commissions. If this is so, the present form of organization provides ample means for the relief of the minority. The county society is an autonomous unit, it is true, but its actions affecting membership are subject to review by the state association through designated officers. Finally, an appeal may be taken to the American Medical Association. A county society that encourages quackery can not exist, except by unanimous concealment of action. That the story is out in this instance shows lack of such meretricious unanimity, and the freedom for appeal first to the councilor, then to the entire council, and finally to the house of delegates of the state association, with last resort to the American Medical Association, is still open.

The facts of the case, and we obtain them from the complaining member, are sufficiently discouraging, but not nearly so hopeless as to warrant "quitting." At a meeting of 21 of 42 members there was discussion of amendments directed against contract practice and secret commissions. Seven are said to have spoken against adoption of the amendment to prevent members engaging in contract practice, though each one admitted such practice to be wrong, while, in their opinion, locally necessary at present. Four spoke in favor of adoption, one of whom moved, in view of the opposition, to table the amendments for five years, and the motion carried. No discussion of the secret commission is reported. There was no vote on either amendment. A resolution was adopted condemning contract practice unless the remuneration approaches the minimum for similar work in private practice.

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[1] It should be emphasized once more that the county society plan was not a new one when it was adopted four years ago as the basic principle in the general reorganization scheme. Such organizations as those in Alabama, Connecticut, Indiana, New York (both the society and the association) and Pennsylvania, which have been on the county society basis, some of them for nearly a century, did not find that it "encouraged quackery."

What is needed by this society is help from the state association. Of course, conditions in a large city differ from those in a smaller town, but, in either case, those who wish to see contract practice abolished must get to work, with the help of the councilor and others, and create a sentiment against the evil. Legislation is no remedy, and its failure of enactment no due cause for discouragement. With the sentiment said to exist in the county, if the by-law had been adopted it could not be enforced. Once having created a healthy sentiment among the majority, a simple agreement, reached gradually and accompanied by suasion applied to those of the laity demanding contract practice, will abolish the evil, at least in great part. A better opportunity for experimental trial of remedies to meet the demand for such practice can hardly be imagined. Those now disheartened have an enviable chance to lead us to practical methods of reform. It is the time for hope and action. What better feature of our plan of organization could there be than that which compels the upright physician to associate with and to uplift his less fortunate brothers whom necessity has led into error? No need for those of principle to "let themselves down to the lower level," but great need to keep on holding out the hand of fellowship to the poor fellows who are down.

TRUTH AND POETRY CONCERNING URIC ACID.

VIII.

Coincidently with the study of the methods by which uric acid is formed and destroyed in the body, efforts were made to determine the exact localization of these processes. The site of formation of uric acid was one of the earliest points to be studied, and the problem was approached in various ways. At first, certain organs supposedly related to uric-acid formation were removed and the metabolic changes following the operation studied. Thus an idea had early gained ground that *uric acid is formed in the kidneys. Zalesky,*[1] *who was* unable to demonstrate the presence of uric acid in the normal blood of birds and snakes, declared that on tying the ureters deposits of uric acid appear first in the kidneys, then in the adjacent lymphatic system and, later, in the blood and in the other tissues. In other words, the deposits gradually spread from the kidneys as a center, and this mode of distribution led him to the firm belief that the kidneys form the uric acid. It was shown later by Meissner,[2] however, that uric acid is present in the normal blood of birds, and other investigators (Chrzonszczewsky, 1866; Colosanti, 1881; Pawlinoff, 1875) proved that the deposition of uric acid and urates does not proceed so regularly from the kidneys as a center as Zalesky had thought; indeed, the findings of these observers rather pointed toward an extrarenal origin for uric acid. In birds it was shown that local injury to the tissues anywhere often causes a deposition of uric acid, and it seemed likely that the predominance of deposits in and about the kidneys in Zalesky's experiments might fairly be attributed to the trauma.

A second mode of ascertaining the site of uric-acid formation consisted in the determination of the quantities of uric acid present in various organs. This was the method followed by Meissner, who, on account of the large amount of uric acid present in the liver of birds, advanced the theory that the liver is the organ in which the substance is built. Others confirmed Meissner's view in that they found much uric acid in the livers of the ox, pig, horse and man. Against this view it was urged first, that only a small amount of uric acid is present in the liver of the dog; second, that uric acid is present in considerable quantities in other organs, like the spleen (Scherer, Ranke); and third, that the presence of uric acid in an organ may mean only its accumulation, not its formation, there.

A third mode of searching for the building place of uric acid was resorted to; certain organs of the body were isolated and the substances from which uric acid can be formed were passed through them. The amount of uric acid formed could then be measured directly, control experiments showing that the uric acid output was not due simply to the washing of preformed uric acid out of the organ. This, or a modification of it, is the method which has been used by Spitzer,[3] Wiener,[4] and especially by Kowalewski and Salaskin.[5]

Without entering into the details of the various experiments or the discussions to which they have given rise, it may be said that the formation of uric acid by oxidation of nuclein or xanthin bases has been shown to take place in a great many different organs of the body, while the formation of uric acid by the synthetic method occurs chiefly, if not solely, in the liver.

Of equal interest are the studies made to determine the site of uric-acid destruction in the body. The researches of Stokvis (1861), Ascoli (1898), M. Jakoby (1899), Wiener (1899), and Croftan (1903) indicate that various organs destroy uric acid and, indeed, that some of the organs that build it also decompose it. There is marked variability in different animals in this regard; in carnivorous and omnivorous animals it would appear as though the liver, for instance, is actively destructive of uric acid while in herbivorous animals the synthetic production of uric acid would seem to predominate over the destroying power of the organ. Croftan's studies of human tissues indicate that, bulk for bulk, the human kidney destroys more uric acid than the liver, the liver more than the muscles, the muscles more than the spleen and the blood. If one includes the relative bulk of these organs, as compared with the bulk of the whole body, in the calculation, he finds that the muscles destroy most uric acid, next the kidneys, and then the liver, the spleen and the blood.

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[1] Zalesky: Untersuchungen über den uraemischen Process und die *Funktion der Nieren*, Tübingen, 1866.

[2] Meissner, G.: Beiträge zur Kenntnis des Stoffwechsels im tierischen Organismus, Zeitsch. f. rat. Med., vol. xxxi, 1868, p. 144.

[3] Spitzer, W.: Die Ueberführung von Nukleinbasen in Harnsäure durch die Sauerstoffuebertragende Wirkung von Gewebsauszügen, Pflüger's Arch., vol. lxxvi, 1899, p. 192.

[4] Wiener, H.: Ueber Zersetzung und Bildung der Harnsäure im Tierkörper, Arch. f. exper. Path. u. Pharmak., vol. xlii, 1899, p. 375.

[5] Kowalewski, K., und Salaskin, S.: Ueber die Bildung der *Harnsäure in der* Leber der Vögel, Ztschr. f. physiol. Chem., vol. xxxiii, 1901, p. 210.

There is room for much valuable work on the ferments or catalyzers which are responsible for uric-acid formation and for uric-acid destruction. Only a beginning has been made in this direction, but the field is so promising a one that it will be strange if a number of investigators are not soon attracted to it.

THE TOXIC EFFECTS OF FORMALDEHYD.

In another editorial we call attention to the increasing use of formaldehyd, and to the effects which it produces locally on the skin of the hands. Inasmuch as its use has been suggested as an inhalant in respiratory diseases, the recent work of Fischer[1] on the toxic effects of the various formaldehyd preparations is of interest. In this work, which was experimental, the drug was introduced by various routes into the bodies of animals. In some instances animals were subjected to the fumes in rooms which had been fumigated in the ordinary way, in other instances the drug was introduced into the stomach, peritoneal cavity or subcutaneous tissues. The general effect was the same whatever route was used. Not only were local lesions of an inflammatory character produced in all instances, but there was evidence that the drug was absorbed and produced important lesions of the parenchymatous organs, especially of the liver and kidneys. Of especial importance is the fact that the inhalation of the drug caused bronchitis and pneumonia. These findings show that the use of the drug by inhalation is not without danger, and it is, indeed, doubtful if it should be used in this way. The irritating characteristics of the drug are such that it should be used with great caution whatever method is employed.

SHIP MEDICINE CHESTS.

A recent investigation conducted by the *Pharmaceutical Era* showed that American tramp steamers, freighters and coasting schooners are not sufficiently provided with necessary drugs and medical supplies. A Federal law requires all American passenger-carrying vessels to provide medical attention and drugs, even for short voyages, but no such provision is made for purely freight-carrying vessels. British vessels, on the other hand, must carry medical stores suitable to the particular class of vessel, and a book of instructions for dispensing such supplies. It is stated that no British ship is permitted to leave even a foreign port unless its locker contains the prescribed number of remedies, but that many American ships, unless engaged in the passenger service, carry only such remedies as the agent's fancy may dictate. One ship carried only a few pounds of Epsom salts and a half gallon of castor oil. In Great Britain medical inspectors from the board of trade are expected to examine the medical stores of outgoing vessels, and are held responsible for the quality as well as for the quantity of the drugs. They can prevent a vessel leaving port until properly stocked with drugs. It should be the same with us.

THE NEWSPAPERS' VERSION OF OSLER'S FAREWELL.

If Dr. Osler had had the foresight to engage the clipping bureaus of the country, what a unique portfolio of newspaper clippings he could have taken to staid old Oxford, and how the dons would shudder if they could read all the things that the American newspapers have said about their new associate. They would certainly be shocked, to say the least. The newspapers have given him some pretty severe "jolts," just because a reporter said he said what he did not say. The whole affair has been a reflection on the intelligence of the managing editors of our newspapers; Osler's own life is a refutation of the principle he was reported to have enunciated. Since he was 40 years of age his life has been full of activity; he has been accomplishing things. What one says must be weighed by the motives of the speaker, as well as by the effect the talk is desired to have on the listeners. Osler was talking to and for the young man, to encourage him to work during his youthful, manly vigor. No man knows better than Osler that old age is a term that is applied arbitrarily to any specified age; that some men are old at 30, while others are young at 80. We are all of us as old as our arteries, and as young as we feel. A reading of what Osler did say, a full abstract of which we are printing this week, will show that he said some very sensible things in that address, and that he did not advocate chloroforming at 60.

THE EFFECTS OF FORMALDEHYD ON THE SKIN AND NAILS.

It is difficult to realize that the use of formaldehyd has become so widespread, not only in medicine, but in the trades, that the annual production has reached 400,000 kilograms. This means that a large number of individuals daily must be more or less exposed to its action. The changes in the nails and skin which may result from such exposure have recently been described by Galewsky.[1] His cases were all in laboratory habitués who used the substance in pathologic or histologic work. The changes occurred in most instances long after the exposure to the formalin, in some cases from six to nine months having elapsed between the handling of the formaldehyd and the appearance of the lesions. The first symptom was a brownish discoloration of the nails, and this was followed by softening, a painful splintering and thickening in the neighborhood of the matrix. In some cases the lesion was confined to the nails, but in others the skin of the hands also suffered. The skin lesions took the form of an eczematous eruption, which at times extended as far as the wrist joint; this was accompanied by inflammatory edema and by vesicle formation. The nail condition differed from that which often accompanies ordinary eczema, in which the nails are generally hard and brittle. Nearly all the patients complained of the burning and boring sensation in the ends of the fingers and the nails. The affection is an unusually stubborn one, and may last as long as a year and a half. It seems probable that it is not confined to laboratory workers, and those whose work is in skin diseases should be on the look out for the conditions in those who use formaldehyd in their work. Dermatologists also should be cautious in the use of the drug in hyperidrosis and similar conditions in which it is sometimes used.

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[1] Jour. Exper. Med., vol. vi, Nos. 4-6.

[1] Münchener med. Woch., vol. lii, No. 4, January 24.

THE SECRET NOSTRUM VS. THE ETHICAL PROPRIETARY PREPARATION.

For years the proprietary medicine question has been a perplexing problem for physicians, and as the articles of this class increase in number, the question becomes more vexed and more serious, and its solution more urgent. In taking up the subject, it may be stated at the outset that there is no more serious objection to a proprietary medicine *per se* (i. e., one protected by a copyright or by a trade-mark) than to one that is protected by a patent; for example, one of the synthetic chemicals.[1]

Technically, there is no difference between the proprietary medicines manufactured for physicians' use and the "patent medicines" exploited to the public, both being protected simply through copyright or trade-mark names. Yet the relation of the physician to these preparations is very different; about the latter he has little direct concern, save that he regrets that our laws permit the foisting on a suffering and unsuspecting public of preparations that are usually dangerous and always irrational. In the former he is directly and intensely interested, for they compose a part of the armamentarium which he is expected to use. On them he often has to depend, or at least does depend, consequently on them rest his success and the health, sometimes the lives, of those who place themselves in his care. In theory, they reflect the advance made in pharmaceutical science; in fact, if we take the greater number of them as our criterion, they discredit pharmaceutical science, for the character of this greater number is such that they are creditable neither to those who make them nor to those who use them.

At first, these preparations were introduced under pharmaceutical or descriptive names; they were of well-known composition, represented elegant preparations of standard formulæ, and were manufactured by pharmaceutical houses which took pride in their products. These preparations the physician welcomed as an advance in pharmacy, and he gladly specified in his prescriptions the name of the manufacturer whose product he desired. Such were the original prescriptions for elixirs, syrups, pills, etc., of the manufacturing pharmacists. Some thirty years ago, however, there appeared, one by one, preparations bearing coined names, protected from imitation by copyright or trade-mark, with formulæ more or less mysterious and fictitious—in other words, secret. By making extravagant claims and by persistent exploitation in various ways, the manufacturers induced physicians to use them, and as they were usually the simplest kind of mixtures, requiring little, if any, machinery or skill in their compounding, and being composed of inexpensive drugs, the profits were large. Thus the field for commercial enterprise became an enticing one. The manufacturer might be an individual with no pharmaceutical knowledge and with his identity hidden under the anonymous name of some chemical company; thus, the better to impose on the credulous doctor, he combined the secrecy of his preparation with the mystery surrounding its manufacturer. With their fancy therapeutic or disease-suggesting names and with extravagant claims regarding their therapeutic value, these medicines appealed to a certain class of doctors; they were convenient, palatable, and, at least, satisfactory placebos. Further, they saved the doctor the trouble of writing a full prescription. It was not long, however, after these preparations became popular with the physician before they became popular in the true sense. The fancy, catchy names which caught the physician caught the layman as well, and the latter, finding not only full directions for use, but the names of the diseases in which the remedies were indicated, naturally bought them in preference to the so-called "patent medicines," for were these remedies not endorsed by the "faculty," and had they not testimonials from "the most prominent physicians"! Thus the physician became the unpaid pedler of secret nostrums; thus he encouraged his patient to prescribe for himself, and thus, as the secret nostrum manufacturer became richer, the physician became poorer.

All proprietary medicines, however, must not be classed as secret nostrums. While a few reputable manufacturing pharmacists have not been able to resist the temptation to sacrifice their good names by manufacturing and by exploiting preparations that are nothing more nor less than secret nostrums, and while so many physicians seem to be content to use such preparations, there are plenty of honestly made and ethically exploited proprietary preparations that are therapeutically valuable, and that are worthy of the patronage of the best physicians. In spite of all with which it has had to contend, the science of pharmacy in America is progressing, and is still leading the world. But how is the physician to separate these preparations which are ethical from those which are not? He is not supposed to be a chemist or a pharmacist, and if he were, he has neither time nor inclination to examine all the products he is asked to prescribe, or to inquire into the standing of those who exploit them. The number has become so great that to attempt to separate the good from the bad is bewildering, and no one individual is courageous enough even to try. The result of it all is that the educated, thinking physician—he who is honest with himself and with his patient—refuses to prescribe any proprietary mixture; he classes all as secret nostrums, and lets it go at that. What else can he do?

For many years the separation of the legitimate chemical and pharmaceutical preparations from those which we choose to call secret nostrums has been a difficult task for those conducting medical journals, whose advertising pages it was desired to keep free from unethical advertisements. The Board of Trustees of the American Medical Association has found the question most difficult of solution, and it has been before the board at nearly every meeting for many years. Ten years ago the board formulated certain rules, the basis of which was that the formula should be published; this, however, has proved very unsatisfactory. No manufacturer would furnish a working formula, and yet, without this, it is impracticable, except in very few instances, to verify the statements made regarding the composition of an article. Consequently, the claims made by the manufacturers had to be accepted, which means that the personal equation had to be considered in giving a decision, and this is not always a safe basis for sound judgment. It has long been recognized by those who have given thought to the question that a secret nostrum can not be changed into an ethical preparation by attaching to it an incomplete formula; further, the problem is too complex to be solved so easily.

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[1] It is acknowledg[illegible] [illegible]vers [illegible] that the manufacturer should be protected when he has originated something of value to the public or [illegible]. It is not acknowledged, however, that this protection should be unlimited, as is the case with the trade-mark articles; a protection for a limited [illegible]es, is just and fair, but an unlimited

Five years ago we published a series of articles on "The Relation of Pharmacy to the Medical Profession." In these articles we discussed the problem in all its phases, the difficulties connected with the question were explained, and the fact was recognized that physicians can not distinguish between the preparations that are worthy and those that are unworthy. The remedy suggested was a board of control, to be composed of pharmacists and chemists, which should pass on all medicines offered for insertion in the advertising pages of The Journal. Although its execution was deferred, the idea has never been abandoned, but has been kept in view ever since.

One objection to the original idea was that the results would be negative, except in so far as they applied to the advertising question. The suggestion finally was made to broaden the scope of the proposed board by making its functions similar to those of the Committee on Revision of the United States Pharmacopeia; in other words, to have it take up the work where that committee leaves off, and to publish in book form a list descriptive of the preparations which conform to the required standard, but which are not official. For more than a year this idea has been under consideration and development. Opinions regarding its practicability were obtained from many of the leading pharmacists and chemists of the country. In a quiet way tests were made regarding the practical working of the proposed plan, as it affected certain phases of the question and certain articles, and full consideration was given to the results to be expected, as well as to the possibilities and to the limitations, before the Board of Trustees finally authorized the creation of the Council on Pharmacy and Chemistry, the name adopted rather than "board of control," as originally suggested.

It is expected that in the immediate future a corps of medical consultants will be formed, to be composed of physicians connected with the large hospitals in various parts of the country, who will make physiologic and therapeutic tests of such preparations as it may be necessary to submit to such investigation. It is also in contemplation to establish a chemical and drug laboratory in the American Medical Association building, to be placed in charge of a competent chemist, who will examine such preparations as may be found necessary.

As some of our readers may not know all the members of the Council on Pharmacy and Chemistry, it will not be out of place to give the positions they occupy: Arthur R. Cushny is professor of pharmacology in the Department of Medicine and Surgery of the University of Michigan. He has recently been called to the professorship of pharmacology in the Medical Department of University College, London, as was announced in The Journal some weeks ago. Dr. Cushny will continue with the council until he removes to England, when he will assume the position of corresponding member. C. Lewis Diehl is professor of pharmacy at Louisville (Ky.) College of Pharmacy, vice-chairman of the Committee on Revision of the U. S. Pharmacopeia, chairman of the Committee on Revision of the National Formulary, and has been for twenty-eight years reporter of the progress of pharmacy for the American Pharmaceutical Association. C. S. N. Hallberg is professor of pharmacy in the University of Illinois School of Pharmacy, a member of the Committee on Revision of the U. S. Pharmacopeia, a member of the Committee on Revision of the National Formulary, and has been for five years secretary of the Section on Pharmacology of the American Medical Association. Robert A. Hatcher is professor of pharmacology in Cornell University Medical School, and joint author of "A Text-Book of Materia Medica," by Hatcher and Sollmann. Lyman F. Kebler is chief of the drug laboratory of the Department of Agriculture at Washington, D. C., and has done much of the chemical work in the exposition of certain fraudulent patent medicines. J. H. Long is professor of chemistry in Northwestern University Medical School. Frederick G. Novy is professor of hygiene and physiologic chemistry in the Department of Medicine and Surgery of the University of Michigan. William A. Puckner is professor of chemistry in the University of Illinois School of Pharmacy. Samuel P. Sadtler is professor of chemistry in the Philadelphia College of Pharmacy, the author of "A Text-Book on Chemistry," associate editor of the U. S. Dispensatory, and a member of the committee on Revision of the U. S. Pharmacopeia. Julius O. Schlotterbeck is professor of pharmacognosy in the University of Michigan School of Pharmacy. Torald Sollmann is professor of pharmacology in Western Reserve University. Julius Stieglitz is associate professor of chemistry in the University of Chicago and the author of several works on chemistry. Martin I. Wilbert is apothecary to the German Hospital of Philadelphia. H. W. Wiley is chief of the Bureau of Chemistry of the Department of Agriculture, Washington, D. C.

We quote below the preliminary announcement of the council in the form of a circular letter to the manufacturing pharmacists of the country. We hope that every reader of The Journal is sufficiently interested in the movement to read it.

COUNCIL ON PHARMACY AND CHEMISTRY.

Chicago, Feb. 28, 1905.

To the Manufacturing Pharmacists and Chemists of the United States and to Others Concerned:

As the culmination of plans which have been under consideration for the past two years, the Board of Trustees at a meeting held Feb. 3, 1905, created by resolution an advisory board to be known as the Council on Pharmacy and Chemistry of the American Medical Association. The organization of the council was perfected at Pittsburg, Pa., Feb. 11, 1905, and it herewith presents the following statement:

PRELIMINARY ANNOUNCEMENT.

It is the immediate purpose of the council to examine into the composition and the status of the various medicinal preparations which are offered to physicians, and which are not included in the United States Pharmacopeia, or in other standard text-books or formularies. These preparations will include the synthetic chemical compounds, as well as the so-called proprietaries and pharmaceutical specialties put out under trademarked names. Preparations which conform to the standard established by the ten rules governing the matter, will be incorporated in "New and Non-Official Remedies," a book to be published by The Journal of the American Medical Association.

The general need of an accessible, authoritative work of reference of this character is obvious, for at present there is no such book to which the physician can refer. Its value will be proportional to its completeness. It is, therefore, proposed to be as liberal in approving articles for the book as is consistent with justice and equity to the public, to the manufacturing pharmacist and chemist and to the physician. The acceptance of articles will be determined by the appended rules, an examination of which will show that they are sufficiently liberal to permit the admission of all articles offered to the medical profession that are honestly made, ethically exploited, and worthy of patronage by intelligent physicians.

The acceptance of an article will be based on a careful and unprejudiced examination of the accessible information from all sources, and in compliance with the adopted rules. An acceptance, however, is not to be interpreted as an endorsement, neither is omission from the list to be construed, in every case, as condemning an article; it may mean that the necessary information has not been obtained. The council does not pass judgment on the therapeutic value, but on the ethical status only. The council does not presume to dictate what preparations should be prescribed; nor is it the present intention to conduct an active campaign against fraudulent products; but merely *to supply necessary and desirable information concerning those which it considers unobjectionable.*

The plan for the work is briefly as follows: All available information regarding a product will be secured from the manufacturer and from other sources. This information, together with specimens of the article, will be submitted to a committee of experts, who will examine critically into the product, consider the claims made for it, and make a report. On the basis of this report, the council will accept, reject or hold for further consideration. If accepted, the information will be condensed and arranged somewhat on the plan of the United States Pharmacopeia, but with the addition of brief pharmacologic and therapeutic data. The council believes that there are many articles, at present not recognized by the Pharmacopeia, which comply with the required standard and do not need any further investigation. In this class come many of the synthetics as well as many well-known pharmaceutical specialties. These are now being written up and it is proposed to issue the first edition of the book as soon as possible. No charge will be made for representation in the book.

As fast as new articles are accepted, all information regarding them will be published in The Journal of the American Medical Association, and will be incorporated in the next edition of the book.

The council appreciates the importance and difficulties of the work to be undertaken and does not expect to take a step forward without being sure that it is right and just to all concerned. It does not dare to hope for perfect results and can only promise to strive earnestly, *honestly and impartially* to avoid serious errors of commission and omission. It asks for the hearty co-operation and assistance of those it believes to be interested in the work—the entire medical profession and all honorable manufacturing pharmacists and chemists. Criticisms and suggestions will be welcome.

RULES GOVERNING THE ADMISSION OF ARTICLES.

The following rules are adopted to guide the Council on Pharmacy and Chemistry of the American Medical Association:

(The term "article" shall mean any drug, chemical or preparation used in the treatment of disease.)

Rule 1.—No article will be admitted unless its active medicinal ingredients and the amounts of such ingredients in a given quantity of the article, be furnished for publication. (Sufficient information should be supplied to permit the council to verify the statements made regarding the article, and to determine its status from time to time.)

Rule 2.—No chemical compound will be admitted unless information be furnished regarding tests for identity, purity and strength, and, if a synthetic compound, the rational formula.

Rule 3.—No article that is advertised to the public will be admitted; but this rule will not apply to disinfectants, cosmetics, foods and mineral waters, except when advertised in an objectionable manner.

Rule 4.—No article will be admitted whose label, package or circular accompanying the package contains the names of diseases, in the treatment of which the article is indicated. The therapeutic indications, properties and doses may be stated. (This rule does not apply to vaccines and antitoxins nor to advertising in medical journals, nor to literature distributed solely to physicians.)

Rule 5.—No article will be admitted or retained about which the manufacturer, or his agents, make false or misleading statements regarding the country of origin, raw material from which made, method of collection or preparation.

Rule 6.—No article will be admitted or retained about whose therapeutic value the manufacturer, or his agents, make unwarranted, exaggerated or misleading statements.

Rule 7.—Labels on articles containing "heroic" or "poisonous" substances should show the amounts of each of such ingredients in a given quantity of the product.

Rule 8.—Every article should have a name or title indicative of its chemical composition or pharmaceutic character, in addition to its trade name, when such trade name is not sufficiently descriptive.

Rule 9.—If the name of an article is registered, or the label copyrighted, the date of registration should be furnished the council.

Rule 10.—If the article is patented—either process or product—the number and date of such patent or patents should be furnished. If patented in other countries, the name of each country in which patent is held should be supplied, together with the name under which the article is there registered.

EXPLANATORY COMMENTS ON THE RULES.

Rule 1.—Certainly no one can object to this rule. The physician not only has the right to know, but it is his duty to know, the composition of medicines he prescribes for his patients. He may not be interested in the details of the method or of the process of manufacture of an article, but he should know what medicinal agents it contains, and the amounts represented in a given quantity of the article.

Only in exceptional instances is it necessary for the physician to know the solvent, vehicle or other diluent, or the particular flavoring agent which may have been employed. For this reason, while the council desires the formula and the details as to the method of preparation to be sufficiently complete to enable it to verify the correctness of the assertions made regarding an article, the description to be published will usually consist only of a statement of the amount of each medicinal agent or ingredient in a certain quantity—generally the ordinary dose—of the article, and in some instances the general character of the solvent or vehicle and flavors.

In preparations for external use, the therapeutic efficiency is greatly influenced by the nature of the vehicle. Therefore, in such preparations, the character of the vehicle or base should be stated, so that it may be known whether the article is penetrative or simply protective.

Rule 2.—In order to avoid errors in the case of chemical compounds and to guard against adulterations, lack of potency or strength and mistaking one chemical for another, it is necessary to have at hand suitable identity tests. Where these facts have appeared in the literature, or in standard textbooks, reference to them will be sufficient, but with new chemicals, especially synthetics, the manufacturer or his representatives will be required to supply such tests to the council, together with the rational or structural formula, in order that an intelligent opinion of these products may be obtained.

Rule 3.—While the correctness of the principle that physicians can not be expected to favor any medicine which is exploited to the lay public will be readily conceded, this rule is to be modified in its application to articles not strictly medicinal.

Rule 4.—This rule may appear to some as radical, and yet on consideration it will be found just to the public, to the physician, to the manufacturing pharmacist and chemist, and also to the retail druggist. It must be remembered that it applies only to the package, and to the labels, circulars, etc., accompanying it. It does not in any way interfere with advertising, circulars, literature, etc., furnished to physicians. Experience has clearly shown, however, that it is not safe to enumerate on the package the diseases in which an article may be indicated, since this is also the means by which the laity, who are not competent to determine whether or not its employment is safe and proper, may be induced to continue its use or to recommend it to others quite regardless of the evident dangers of forming drug habits or of doing serious injury by employing a remedy that in reality may be contraindicated. It is the physician's prerogative to determine in what disease the article may be indicated, and he is not supposed to go to the drug store for his knowledge regarding this. It is not the function of the pharmacist to recommend or to prescribe medicines, but only to be familiar with their pharmaceutical and chemical characters, strength and dosage and with the best forms of administration.

It is asserted that the naming of diseases on the label of the package is necessary, because many physicians will be unable to tell from the therapeutic properties alone in what diseases a medicinal article may be indicated. This may be true with a certain class of doctors, but it is certainly not true with the vast majority of the educated, progressive physicians of America, and this is the class whose interests are concerned in this movement. There may be some exceptional articles, such as foods, digestants and mineral waters, in which the therapeutic properties alone may not sufficiently indicate the use, and in these cases, perhaps, reference may be made to certain symptoms; if such references appear they will be carefuly considered. Antitoxins and vaccines come under this exemption. The council, however, is unanimously of the opinion that this method of exploiting the medical profession is one of the principal causes which have made the best physicians hesitate to prescribe any proprietary medicines, have led others into irrational therapeutics, have made pharmaceutical tyros believe that they could prescribe just as well as the physicians, and have been the means of causing scores of these medicines to be used for self-medication by the laity, to the detriment and sometimes to the serious and permanent injury of the person taking them. The physician would prefer that the manufacturer confine himself to furnishing the articles and reasonable information regarding their identity, quality, strength and pharmaceutical and chemical character, leaving the physician to indicate in what diseases they should be used.

It is believed that the application of this rule will most quickly determine what manufacturers would rather have the preference and favor of the vast majority of the medical profession and of the members of the American Medical Association than the doubtful support of a rapidly disappearing minority of practitioners.

Ample time will be given manufacturers to conform to this rule, and also to Rule 8, entailing changes in labels or in other printed matter.

Rule 5.—While this is a rare contingency, yet in the past many rank frauds of this nature have been perpetrated on the profession, and this rule will have a tendency to prevent such attempts in the future.

Rule 6.—As in the preceding instance, this rule will have the tendency to restrict manufacturers or agents in their claims as to the therapeutic superiority of their products, without interfering with any reasonable assertions, especially when such are confined to clinical data from responsible medical men.

Rule 7.—For the information of the pharmacist or dispenser, and to enable him to act as a safeguard to the patient and to the physician, all medicinal articles containing such potent agents as the poisonous alkaloids and other organic substances and the salts of some of the metals, should have the exact amount of these ingredients contained in the average adult dose stated on the label. A list of these potent substances will be prepared for more specific information.

Rule 8.—In order to prevent the confusion now existing with reference to many articles known only by more or less arbitrarily selected or coined, usually protected, names, it is necessary that every article which is intended solely for physicians' use or prescription be designated by a scientific title or by a name descriptive of its pharmaceutical character, and, as far as practicable, of its principal medicinal constituents. Synthetic chemical products should give the true chemical constitutional or structural name, in addition to the trade name. The application of this rule will enable physicians to use many of these articles which at present they are afraid to use because of uncertainty as to the identity—owing to the similarity in the names of many of these entirely different products—or prefer not to prescribe in order to avoid criticism and the danger of self-prescription by their patients. This provision will thus be of great benefit to manufacturers of meritorious products, will relieve pharmacists of many trying situations in interpreting correctly the names of articles desired by physicians, and will protect both physicians and laity from the evils named.

The council will use reasonable discretion in enforcing this rule with reference to trade names of long-established articles.

Rules 9 and 10.—This information is desired to enable the council, and others interested, to determine the legal status of these articles and for ready reference through publication.

Respectfully submitted,

ARTHUR R. CUSHNY, Ann Arbor.
C. LEWIS DIEHL, Louisville.
C. S. N. HALLBERG, Chicago.
ROBERT A. HATCHER, New York.
L. F. KEBLER, Washington.
J. H. LONG, Chicago.
F. G. NOVY, Ann Arbor.
W. A. PUCKNER, Chicago.
SAMUEL P. SADTLER, Philadelphia.
J. O. SCHLOTTERBECK, Ann Arbor.
GEO. H. SIMMONS, Chicago.
TORALD SOLLMANN, Cleveland.
JULIUS STIEGLITZ, Chicago.
M. I. WILBERT, Philadelphia.
H. W. WILEY, Washington.

Members of the Council on Pharmacy and Chemistry, American Medical Association.

Medical News.

ILLINOIS.

Fire Loss.—The office of Dr. Charles W. Lillie, East St. Louis, editor of the St. Louis *Clinique*, was burned February 3. The loss was $2,000; insurance, $800.

Dr. Norbury Ill.—Dr. Frank P. Norbury, Jacksonville, editor *Medical Fortnightly*, was operated on February 23 for appendicitis, and is progressing satisfactorily toward convalescence.

Itinerant Vendor Fined.—"Dr." J. H. Bixler, an itinerant vendor, was fined $300 and costs in Kankakee last week, for practicing without a license. The suit was brought by the State Board of Health.

Dunning Consultants.—The following appointments to the consulting staff of the Cook County Institutions, Dunning, have been made by President Brundage: Drs. Frank Billings, William A. Evans, John B. Murphy, Hugh T. Patrick, Arnold C. Klebs, B. McPherson, Linnell, J. Rawson Pennington, Charles S. Williamson, Alice Hamilton and Edward J. Farnum.

Hearing on Tuberculosis Sanatorium Bill.—The appropriation committee of the house of representatives will give a hearing, March 7, on the substitute bill 330; creating a state sanatorium for consumptives. The bill has the approval of the State Board of Health and of the State Association for the Prevention of Tuberculosis.

Chicago.

Bequest.—By the will of Mrs. Harriet A. Jones, Presbyterian Hospital obtains a $15,000 bequest.

Eye, Ear, Nose and Throat College Election.—At the annual meeting of the stockholders of the college, Drs. William A. Fisher, Adolphus G. Wippern, Thomas Faith, H. W. Woodruff, and John R. Hoffman were re-elected directors. The directors then re-elected Dr. William A. Fisher, president and treasurer; Dr. Adolphus G. Wippern, vice-president, and Dr. John R. Hoffman, secretary.

Columbus Hospital Opened.—This institution, which is under the direction of the Missionary Sisters of the Sacred Heart, was dedicated with appropriate ceremony, February 26, by Archbishop Quigley. The staff of the hospital includes Drs. John B. Murphy, Frank Byrnes, Gustav Fütterer, Julius H. Hoelscher, Heman H. Brown, Thomas S. Crowe, Willis D. Storer, Antoine Biankini, William P. Verity, Randolph Brunson, A. Cosmas Garvy, Harold N. Moyer and David Lieberthal.

Deaths of the Week.—Although 7 more deaths were reported during the week than during the week of the 18th, the Department of Health considers that indications of the state of Chicago's health are more reassuring than at any time since last November. During the last four weeks there have been 2,351 deaths from all causes reported, an annual mortality of 15.40 per 1,000. During the corresponding four weeks last year there were 2,522 deaths—or 171 more—reported and the annual mortality rate was 17.46, or 11.7 per cent. higher. One of the principal causes of this reduction is the lesser prevalence and fatality of pneumonia this winter than last. In the first 56 days of last year there were 1,151 deaths from pneumonia; during the corresponding period this year there have been 1,019, or 132 fewer. On the other hand, there have been 39 more deaths from consumption, and the ratio of consumption deaths (551) to deaths from all causes (4,838) has increased since the first of the year to 11.3 per cent. as compared with 10.4 per cent. last year.

KANSAS.

Contagious Diseases.—During January there were reported 55 cases of diphtheria, with 10 deaths; 149 cases of scarlet fever, with 9 deaths; 713 cases of smallpox, with 2 deaths, and 13 cases of typhoid fever, with 3 deaths.

Kesner Sentenced.—Dr. Christopher C. Kesner, Le Roy, who has been making a strong fight for reversal of the decision against him, has been found guilty of murder in the second degree for the death of a woman after an alleged criminal operation, and has been sentenced to hard labor in the penitentiary for a term not less than three years, nor more than five years.

Legislature Accepts Land for Clinical School.—Both houses of the legislature have recommended the bill accepting the gift of land from Dr. Simeon B. Bell, Rosedale, valued at $50,000, on which is to be erected a hospital to be used as the clinical department of the medical school of the state university. Dr. Bell's offer also includes $25,000 for the erection and equipment of the hospital, and, in addition, he will endow 20 beds in the institution.

MARYLAND.

Baltimore.

Influenza Prevalent.—La grippe is prevailing here and a number of deaths were reported as due to it last week.

Bust of Remsen Presented.—Mr. J. Maxwell Miller, Rhinehart scholar of the Peabody Institute, has modeled a bust in plaster of President Ira Remsen and presented it to the Hopkins University.

The Faculty Meeting.—The one hundred and seventh annual meeting of the Medical and Chirurgical Faculty of Maryland will be held at Baltimore, April 25, 26 and 27. Dr. William Osler will deliver the annual oration and the meeting will be a farewell of the Maryland profession to him.

Anti-Spitting Crusade.—The crusade against spitters has begun. The law prohibits spitting on sidewalks, in public squares, public buildings, railway cars, depots, lodging houses, theaters, stores, factories, hotels, etc. A copy of the ordinance is given to each policeman and notices are displayed all over the city.

Osler Soon to Go.—Dr. William Osler will sail for Europe about May 17. The name of his successor has not yet been announced. The trustees and the faculty of the Johns Hopkins University have engaged Hans Schuler to make a marble bust of Dr. Osler for the university. The plaster cast has been finished and the marble is now on its way from Italy. The bust is a present from a number of Dr. Osler's friends.

Tuberculosis Dispensary Opened.—At the opening of the Phipps Tuberculosis Dispensary, February 21, Mrs. Henry Phipps of Pittsburg was present and took great interest in the proceedings. Mr. Phipps has given an additional $5,000 to the work. Mr. Victor G. Bloede has donated a sufficient sum to pay the expenses of a trained nurse. The building is two stories high, of brick, and is located on the Johns Hopkins Hospital grounds.

The Crisis of Two-Score.—Dr. William Osler was the speaker at the commemoration day exercises of John Hopkins University, February 22. He also received the degree of LL.D. from the university. In conferring the degree, President Ira Remsen said: "You confer an honor on the university in accepting it." It was truly Osler day, this being his farewell public address at the university before leaving for Oxford University. The address was very notable in many respects. A full abstract is printed in this issue of The Journal.

Personal.—At the annual meeting of the Alumni Association of the Johns Hopkins University, Dr. Henry Herbert Donaldson, Chicago, was elected president.——Dr. James D. Iglehart was elected president of the St. Johns College (Annapolis) Alumni Association February 22.——Dr. George C. Wegefarth is at Hot Springs, Ark.——Dr. Samuel Taylor Darling, pathologist at the City Hospital and connected with its Pasteur Institute, who was married, February 18, in New York, has received a government position at Panama, and left here, February 21, for his new post of duty.

MASSACHUSETTS.

Anti-Tuberculosis Meeting.—The Anti-Tuberculosis Association of Cambridge held a meeting, February 22, at which Dr. Eugene A. Darling described the work of the association, and Dr. Charles S. Millet of the Millet Sanitarium, East Bridgewater, spoke on "The Home Treatment of Tuberculosis."

Tuberculosis Exposition.—As a result of the activity of the Boston Association for the Relief and Control of Tuberculosis a resolution is being urged on the legislature calling for an appropriation of $2,000 to be expended by the State Board of Health "for an exhibition of means and methods of treating and preventing tuberculosis." The purpose is to have this exhibit sent to various cities and towns of the state for the instruction of the people, in the same way that the less complete outfit of the association has already been used.

Why Osteopaths Urge Bill.—Urgent efforts are being made this year by the osteopaths of Massachusetts to secure the passage of a bill which shall require all practitioners of medicine to pass an examination before the State Board of Registration in Medicine. Their approval of such a bill is explained by the condition that the 60 osteopaths now practicing in Massachusetts shall, on recommendation of the Massachusetts Osteopathic Society, be admitted to practice without examination, having all the privileges of registered physicians, except the practice of major surgery and the right to administer medicines internally.

Convalescent Home Needs Support.—The annual meeting of the managers of the Convalescent Home of the Children's Hospital, Boston, urged the need of greater support. Only about $3,000 was contributed for this work during 1904, and with this 245 children were cared for, averaging 20 daily, while in 1903, 277 were treated, averaging 13 per day. The difference is due to the development of the "shack" treatment for tuberculous joints, many of which patients stayed several months. Here, in cool, fresh air, warmed only slightly by two stoves, children have steadily gained, and have not complained at all of a temperature only 18 above zero.

NEW YORK.

Scarlet Fever Not Epidemic at New Rochelle.—It is denied that scarlet fever has been epidemic in New Rochelle. There are only six cases in a city with a population of more than 20,000.

The Health of the State.—State Health Commissioner Lewis, in his annual report shows an increase in deaths from pneumonia in 1904, and that typhoid fever was prevalent in many small towns. He repeats the request that money be used in investigating the water supply of country districts. It is desired especially to purify Lake George and Lake Champlain from the discharge of pulp mills. Beneficial results have been obtained from the use of toxin from the state laboratory, but a new laboratory building is needed. There were 141,564 deaths from all causes in the state. In the last twenty years the average of deaths has grown from 100,000 to 130,000, the number in 1904 being above the average. The percentage in deaths from zymotic diseases, as compared with other causes of death, shows an improvement. From 1885 to 1889 it increased from 20.6 to 22.7 per cent., while in 1904 the percentage was 12.3. Epidemic cerebrospinal meningitis and measles alone have shown an increase in mortality. For several years Watertown and Niagara Falls have shown a needlessly high death-rate from typhoid fever. Purification of the water supply in those places is a necessity. The many summer resorts ought to be subjected to a careful inquiry as to their sources of water supply. Pneumonia caused 13,500 deaths in 1904, as compared to 10,250 the year preceding. There were more than 14,000 deaths from consumption. Smallpox caused only 13 deaths, which can be accounted for by general vaccination. Many persons, by means of the state laboratory, were protected from tetanus.

Buffalo.

Alumni Dine.—The fifth annual dinner of the Western New York Alumni of the University of Pennsylvania was held recently. Dr. W. W. Zimmer of Rochester, presided. Among the speakers were Dr. George A. Piersol, professor of anatomy of the University of Pennsylvania. It was said that the increase of attendance in the medical department over 1903 was 50 per cent., and 80 to 90 per cent. over the attendance of two years ago.

New York City.

Made Honorary Member.—Prof. Dr. Wilhelm Waldeyer of Berlin was made an honorary member of the Society of Medical Jurisprudence at its meeting, February 20.

Census Favored.—The alderman's finance committee has reported favorably on the health commissioner's request for an appropriation to meet the expenses of taking a census of the congested districts of the city. One of the objects of this census is to obtain data as to the contributory effects of crowded conditions of living on the prevalence of pneumonia, consumption and cerebrospinal meningitis.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending February 18, 339 cases of tuberculosis, with 171 deaths; 272 cases of diphtheria, with 47 deaths; 225 cases of scarlet fever, with 20 deaths; 209 cases of measles, with 8 deaths; 23 cases of typhoid fever, with 4 deaths; 1 fatal case of smallpox; 132 cases of chicken-pox and 40 deaths from cerebrospinal meningitis.

New Cancer Hospital.—Prominent medical men are endeavoring to establish a hospital where cancer may be scientifically treated and inoperable cases cared for. At a hearing before three of the commissioners of the State Board of Charities no objections were offered to incorporating such an institution, provided there was money enough secured for its support for one year. The hospital will be incorporated as the Fairhaven Sanitarium.

Hospitals Overcrowded.—Bellevue Hospital is so overcrowded that appeals for the reception of convalescent patients have been made to other hospitals. Both the Metropolitan and City hospitals on Blackwell's Island are so crowded that authorities at Bellevue were informed no more patients could be transferred to those hospitals. From all hospitals the same report is made. There have never been so many persons suffering from lung diseases. The death rate at Bellevue now averages from 15 to 20 daily. Normally, Bellevue has accommodations for 800 patients, but at present there are over 1,000 in the institution.

Work of the Health Department.—At a special meeting of the advisory board of this department the use of cuspidors in the subway and on the elevated roads as a sanitary precaution was discussed. A form of cuspidor suitable for this purpose was presented and approved. It is probable that the subway and elevated roads will be requested to provide a sufficient number of these so that the public will have no excuse for spitting on the floors.——A committee was appointed to devise a plan for thoroughly cleaning the cars and platforms of the elevated and subway.——Reports in regard to the amount of oxygen in the air of the subway were received, and the condition of the air was said to be satisfactory.——Approval was expressed of the bill now before congress relating to soiled paper money, as it affected public health. Dr. Darlington had appeared before a committee in Washington, to whom he submitted a report of experiments made by Dr. William H. Park to determine the influence of coin and paper money on the life of bacteria. The results of these experiments indicate that metallic substances in coins when brought in contact with bacteria, through the solvent action of moisture, are deleterious, while in paper there are no such substances, the gradual death of bacteria being due to the effect of drying. Dirty pennies averaged 26 living bacteria apiece; dimes, 40; moderately clean bills, 1,250, and soiled bills, 73,000.——The Board of Health, in its endeavor to provide a pure milk supply has had the support of the *American Dairyman.* The last issue of this publication announces that a public lecture will be delivered on "Our Foster Mother on the Farm, or Milk from the Farm to the Table."

OHIO.

District Physicians to Inspect Schools.—For the remainder of the year medical inspection of schools will be performed by the district physicians. They will be subject to call from the principals of the schools in the districts in which they reside to investigate all cases of illness which are thought "suspicious," and will immediately advise principals and parents as to what is necessary. Their inspection will include not only such diseases as diphtheria, scarlet fever, and allied affections, but communicable skin and scalp diseases as well. This step is but preliminary, it is hoped, to a system of thorough medical inspection to be put in force after the present year.

Canton Society Officers.—At the annual meeting of the Canton Medical Society the following officers were elected: President, Dr. Edgar J. March; vice-president, Dr. George A. Kelley; treasurer, Dr. F. D. Hinden; recording secretary, Dr. Clarence F. Schiltz, and corresponding secretary, Dr. Leander D. Stoner. The annual banquet of the society was held January 27. The annual address was delivered by Dr. Brooks F. Beebe of Cincinnati, on "Rationale of Suggestion," and toasts were responded to by Dr. Edwin Ricketts, Cincinnati, "The Doctor's Wife"; Dr. Brooks F. Beebe, Cincinnati, "The Doctor's Fireside"; Dr. Robert A. Biechele, "The Canton Doctor," and Dr. C. J. Aldrich, Cincinnati, "Medicine of the Future."

Personal.—Dr. Joseph A. Hall, Cincinnati, captain and assistant surgeon, O. N. G., has been appointed to the personal military staff of the governor.——Dr. W. H. Pritchard has been elected superintendent of the Ohio Hospital for Epileptics, Gallipolis, to fill unexpired term of Dr. A. P. Ohlmacher, resigned.——Dr. Samuel S. Thorn, Toledo, chief surgeon of the Clover Leaf system, has resigned, but will remain with the road as local surgeon at Toledo.——Dr. Minor M. Jacobs has been appointed a member of the Hamilton Board of Health, vice Dr. Henry Mallory, deceased.——Dr. Henry D. Hinckley has been elected dean of the Cincinnati Polyclinic and Postgraduate Medical School.——Dr. Irving C. Rankin, Akron, is seriously ill with septicemia.——Dr. Herbert M. Platter, Columbus, has been appointed medical inspector.

PENNSYLVANIA.

Physicians Injured.—Dr. Harvard H. Drake, Norristown, narrowly escaped severe injury by the collision of his carriage with a trolley car. He was thrown from the carriage, but fortunately escaped with slight injury.——Dr. William McKenzie, Conshohocken, fell on the ice and sustained a fracture of the femur.

Philadelphia.

Bequest.—By the will of Ellen K. Mitchell, Pennsylvania Hospital receives $5,000 for the establishment of a free bed.

Personal.—Dr. John H. Musser addressed the Rochester Academy of Medicine, Rochester, N. Y., February 15, and on the same day held a clinic in the City Hospital.

Medical Society Reception.—The J. C. Wilson Medical Society was addressed, February 24, by Prof. Albert H. Smyth, on "Benjamin Franklin and His Medical Friends." After the lecture Professor Smyth was entertained at an informal reception by the society.

Dr. McClellan Lectures.—Dr. George McClellan delivered a lecture, February 21, before the students of Jefferson Medical College in the college building, under the auspices of the E. P. Davis Obstetrical Society. His lecture was illustrated and entitled "The Anatomy of the Pelvis with Relation to the Mechanism of Labor." Dr. McClellan was tendered a reception and banquet by the society immediately after the lecture.

Health Report.—The deaths reported for the week ended February 25 aggregated 579, as compared with 599 last week and 643 for the corresponding week of last year. The mortality from pneumonia continues high, 113 deaths being attributed to that disease. This is a decrease, however, of 21 from those of last week. The principal causes of death were as follows: Typhoid fever, 10; diphtheria, 15; influenza, 13; consumption, 51; cancer, 23; paralysis, 38; heart disease, 67; pneumonia, 113; enteritis, 20, and Bright's disease, 49. There were 198 cases of contagious disease with 25 deaths, as compared with 224 cases and 30 deaths for the preceding week.

TEXAS.

Declared Insane.—Dr. R. H. Watkins, Floresville, was adjudged insane, February 10, and ordered to be placed in restraint.

Hospital Annex Dedicated.—The new annex to St. Joseph's Infirmary, Houston, erected at a cost of $45,000, and intended to be used as a sanatorium, was formally dedicated, February 14.

Physicians Injured.—Dr. Henry S. Van Cleave, Nash, was thrown from his horse and seriously injured February 8. He is now improving rapidly.——Dr. Curvier Lipscomb, Denton, slipped and fell, February 8, breaking his right hip.

UTAH.

Germ Day in Utah.—A West Virginia journal characterizes as "a holiday in honor of germs" the General Health Day, the first Monday in October, which is set apart in Utah as a holiday for house cleaning.

Society Election.—At the annual meeting of the Weber County Medical Society the following officers were elected: President, Dr. Harry B. Forbes; vice-president, Dr. Chester E. Coulter; secretary, Dr. Amasa S. Condon; treasurer, Dr. Haymond J. Powers, and delegates to the Utah State Medical Association, Drs. Amasa S. Condon and Edward M. Conroy, all of Ogden.

Personal.—Dr. Eugene W. Whitney has succeeded Dr. Harry N. Mayo as physician of Salt Lake County.——Dr. Gilbert B. Pfoutz, Salt Lake City, has been appointed oculist to the Salt Lake Route.——Dr. William B. Parkinson, Logan, has been appointed physician of Cache County.——Dr. Frost C. Buchtel, Vernal, starts for Europe early this month.——Royal H. Milleron, Salt Lake City, a student at Rush Medical College, Chicago, shot and killed himself at Provo, while despondent.

Hospital Opened.—The Groves Latter-Day Saints' Hospital, Salt Lake City, was opened to receive patients January 9. The staff is as follows: Drs. Joseph S. Richards, Samuel C. Baldwin, Charles F. Wilcox. Charles G. Plummer, Stephen L. Richards, Samuel H. Allen. William F. Beer, Edwin E. Wilcox, Walter S. Ellerbeck. Fred Stauffer, Leslie W. Snow, Chauncey M. Benedict, Mark C. Myers, Franklin H. Raley, Herbert C. Deane, W. Tenny Cannon, William M. Brown, Salathiel Ewing, Thomas G. Odell, R. T. Richards, C. F. Wilcox and E. Gowans.

VIRGINIA.

Physician's Slayer Sentenced.—Charles R. Fishburn, Roanoke, who shot and killed Dr. Charles E. Lefew, Oct. 30, 1904, was found guilty of manslaughter, February 4, and sentenced to five years' imprisonment in the penitentiary.

Personal.—Dr. H. Stuart MacLean, Richmond, has been appointed chief surgeon of the Virginia Passenger and Power Company.——Dr. Francis M. Morgan, Berkley, while making a professional call, February 5, slipped and fell, breaking his clavicle.

Verdict for Physician.—In the case of James Scott against Dr. B. Robert White, Strasburg, in which $1,000 damages was claimed for malpractice in that the defendant was alleged to have neglected to treat the plaintiff for a diseased eye while he was quarantined on account of smallpox, the jury brought in a verdict for the defendant, who contended that he had not been retained by the plaintiff, but had acted only as a health officer.

Home for Medical Library.—The Norfolk Medical Society has entered into an arrangement with the Norfolk Public Library, by which it is enabled to use this building for its books and periodicals. These will, however, only be given out to members of the society and their friends through special cards, as it is not deemed advisable to allow the public free access to medical books. Beside its old books the Norfolk Medical Society has been able to obtain the nucleus of a good reference library, which it expects gradually to increase.

Lectures on Hygiene for School Children.—The Norfolk School Board has obtained the services of eleven physicians of the town to give a series of lectures on hygiene in the public schools. These are to supplement the school course, and are arranged to draw the attention of the pupils more especially to the civic side of the subject. The first of these lectures was given the white schools on Friday, January 6, but they will be repeated later in the colored schools. This plan originated with a member of the board, Dr. Lawrence T. Royster, who, with the cordial support of his brother physicians, hopes by this education eventually to improve the health of the community. Drs. Herbert Old, Charles R. Grandy, Edward T. Hargrave, R. Paul Jones. Rufus S. Kight. B. L. Taliaferro, Stanley H. Graves. J. Judd Miller, Frank H. Hancock, Philip St. L. Moncure, and Lawrence T. Royster have been selected to deliver the lectures.

WISCONSIN.

Medical Library Loaned.—Dr. Lyman J. Rhoades, Fond du Lac, has loaned to the Stevens Point Public Library the medical library of his father-in-law, the late Dr. John Phillips of that city, to be used as a reference library only.

Fire Losses.—The fire at the Milwaukee County Hospital, January 29, caused a loss of $10,000, but no casualties occurred.——Fire in the house of Dr. Philip R. Fox, Madison. February 13, did damage amounting to about $1,500.

Personal.—Dr. William G. Nicholson, Green Bay, sailed for Europe, February 18.——Dr. Richard C. Buchanan, Green Bay, has been re-elected city physician.——Dr. Charles D. Kelley, Milton Junction, has been adjudged insane and committed to the state hospital at Mendota.——Dr. Byron N. Caples, Waukesha, has been elected president of the board of directors of the Waukesha Springs Sanitarium.——Dr. William F. Whyte, Watertown, has been re-elected president of the State Board of Health.

Waukesha County Society Election.—At the annual meeting of the Waukesha County Medical Society the following officers were elected: Dr. Henry G. B. Nixon, Hartland, president; Dr. Benjamin U. Jacob, Waukesha; vice-president; Dr. Maybelle M. Park, Waukesha, secretary; Dr. William. B. Campbell, Menomonee Falls, treasurer; Dr. Thomas Tomelty, Big Bend, censor, and Drs. Albert J. Hodgson, Waukesha, Michael R. Wilkinson, Oconomowoc, and Laurel E. Youmans, Mukwonago, committee on health and legislation.

GENERAL.

To Aid Amalgamation in New York.—At a meeting of the council of the New York State Medical Association, February 25, the following resolution was passed unanimously: "WHEREAS, The council of the New York State Medical Association favors union with the Medical Society of the State of New York, on a plan proposed by the Joint Committee of Conference, which was prevented by legal complications, be it *Resolved*, That the president of the New York State Medical Association is hereby empowered to employ associate counsel who, with the counsel of the association, shall investigate and report on all legal questions relating to the vested rights of the members, the by-laws, and the calling and the holding of meetings."

CANADA.

Winnipeg News.—The epidemic of typhoid fever is practically over in Winnipeg. The city council will appoint a bacteriologist as assistant to the health officer. The health department has sent circulars to the physicians of Winnipeg calling attention to the report of Prof. E. O. Jordan of Chicago, who has been investigating the causes of the epidemic of typhoid through which Winnipeg has been passing for many months. The report appeared in The Journal, February 18, page 563.

Montreal General Hospital Report.—At the eighty-second annual meeting of the governors of the Montreal General Hospital, a considerable decrease in the annual income was reported. The 1904 income was $83,589, $7,605 less than in 1903. The total number of patients in the wards during 1904 was 3,144, as against 3,066 during 1903. In the out-door departments the total number treated amounted to 38,922, as against 35,984 for the previous year. Of the total number of patients admitted during the year—3,156—2,893 were discharged, 251 died, and there remained in the institution at the end of the year 201 patients. The percentage mortality was 7.98, or 4.9 exclusive of those dying within three days of admission. The average cost per patient per day was $1.38, as against $1.56 in 1903. Dr. F. G. Finley was re-elected secretary.

Canadian Government Asked to Combat Tuberculosis.—A resolution submitted to the federal parliament last week declares that the government should take steps to combat the spread of tuberculosis. Mr. Perley, who introduced the resolution, stated that out of the 60,540 people who died in 1903 in the provinces of Ontario and Quebec, 2,943 deaths were from tuberculosis in Quebec, and 2,723 in Ontario, as compared with 2,017 and 1,938 respectively of all other contagious diseases. In the entire Dominion of Canada, the number of deaths last year amounted to about 8,000. Mr. Perley considered that if the government would co-operate with the Canadian Association for the Prevention of Tuberculosis much could be done in staying the ravages of the disease. All of the medical men of the house of commons strongly endorsed the resolution, and the minister of agriculture, under whose charge are all matters of public health, also supported it. The debate on the resolution will have the effect of a larger governmental grant to the Association for the Prevention of Tuberculosis.

FOREIGN.

From the Seat of War.—Our Russian exchanges for February give the names of several physicians who were among the 15,000 wounded in Port Arthur at the time of the surrender.

Behring's Method of Immunizing Cattle Against Tuberculosis.—Professor Mazzini is in charge of experiments on a large scale undertaken in Italy to test the value of Behring's method of immunization.

Subsidence of Plague in Russia.—The prophylactic measures instituted in the Ural district to prevent the spread of the plague have been successful. They have now been suspended, as there is no further need for them.

Antimalaria Education.—The Italian government has issued a pamphlet entitled "Popular Instruction in Protection Against Malaria." It has been sent to all the public school teachers to aid them in instructing the young in prophylactic measures.

Lowered Death Rate in City of Mexico.—Owing to the improved sanitation, better drainage and inspection of foodstuffs, the death rate in the City of Mexico, during 1904, was 41 per 1,000, an improvement over former years, when it frequently rose to 49 per 1,000.

Epidemic of Cerebrospinal Meningitis in Germany.—Our German exchanges state that this disease is extremely prevalent in upper Silesia. In the Königshütte district alone there have been 18 cases among adults and 74 in children, with a mortality of 4 adults and 32 children.

Personal.—The University of Halle, Germany, has conferred on Willy Merck, Ph.D., member of the old house of E. Merck, Darmstadt, the honorary degree of doctor of medicine "in recognition of numerous meritorious contributions looking to the advancement of the therapeutic side of medicine."

Study of Anemia in Porto Rico.—A bill has been introduced in the Porto Rico legislature to appropriate $20,000 to continue the study of anemia. In accord with its provisions, tents would be erected all over the island, and physicians conversant with the disease would commence work at once. It is estimated that 50 per cent. of the inhabitants of the rural regions of the island suffer from this parasitic disease.

Plague in Aden.—Many new cases of plague have been reported in Aden and, according to the *Public Health Reports*, the disease is becoming epidemic. Owing to the apathy of the populace, the sanitary authorities are meeting with difficulties in their efforts to combat the disease. For the guidance of the plague committees, directions are being published for the care of the sick and for cleansing and disinfection of infected premises.

Massage by the Blind.—Massage is cheap and within the means of all classes in Japan. The blind, protected by the government, are self-supporting and contented with their lot and have a practical monopoly over massage, says the *Medical News*. This condition has existed for centuries. In four countries—Russia, Belgium, England and Germany—there have been well organized and successful attempts to teach selected blind people massage.

Centennials of Russian Universities.—There was no official celebration, but compendious reports were issued in January to signalize the fact that 150 years had elapsed since the founding of the University of Moscow and 100 years since the founding of the Kharkov University. The faculty at Moscow includes 72 regular professors, of whom 25 belong to the medical department, the total force of instructors numbering 224, and at Kharkov 144.

Visiting Nurses for Rural Districts.—Baden and Bavaria have an association which supplies trained nurses for country districts. The Bavarian association is a branch of the Red Cross. It has 16 of these nurses, and during 1904 they took care of 210 patients, including 33 parturients. Nowhere are the services of a trained nurse so appreciated by the physician as in the rural environment, and the nurses are required to insist on medical attendance in every case they undertake.

Endemic Affections in Submarine Boats.—The widow of a French naval officer appealed to the government for a pension, asserting that her husband's two years of duty on submarine boats had been the cause of his death. Her petition stated that the conditions of life on a submarine boat entail endemic affections, and her husband succumbed to rheumatic endocarditis which she attributed to this cause. The courts decided in favor of the assumption of endemic affections on submarine boats, and awarded her the desired pension.

Association of Physician with Layman Illegal in France.—Dr. Klein, a French physician, entered into a contract with a "so-called chemist," named Crotte, to establish an institution for the treatment of tuberculosis. Klein paid $10,000, but soon wished to withdraw from the contract, claiming that he had been deceived, and demanded his money back. The decision of the court was to the effect that as a contract between a physician and a layman for the exercise of medicine in common is unlawful, there had been no valid contract, and consequently the physician was entitled to his money.

The Heidelberg Cancer Institute.—The organization of the official cancer research committee at Heidelberg was mentioned recently in these columns. About $125,000 has been subscribed for a cancer institute, and Czerny, the chairman of the committee, has increased this amount by $25,000 from his private purse. The institute is to be lavishly equipped; it is arranged for 47 beds, with a laboratory, etc., for all kinds of research work. All scientists who wish to study the subject of cancer with the most approved means of investigation will be welcome. For the present the institute is to form part of the surgical clinic, but the faculty is to decide, at five-year intervals, whether this connection with the clinic corresponds to the best thought of the day. In the collective research throughout the state (Baden), special attention is to be paid to the study of cases of cancer occurring in groups at certain points.

A Dettweiler Institution.—To honor the memory and the works of the late Geheimrath Dr. Peter Dettweiler, the founder of the Falkenstein Sanatorium and of the first people's sanatorium at Ruppertshain, it has been decided, by his friends, admirers, patients and pupils to establish an institution bearing his name, which shall be a home for physicians who have served in sanatoria for consumptives, and who have become invalidated by disease, accident or old age. For the collection of funds and the final arrangements a committee has been formed under the patronage of the Princess Friedrich Carl of Hesse. This committee is composed of many of the foremost men and women of the German empire. Of the medical men who have signed the appeal for funds, we read such names as Besold, the successor to Dettweiler, Professors Curschmann of Leipsic, Flügge of Breslau, B. Fränkel, von Leyden and Pannwitz of Berlin, General Dr. von Leuthold, physician to the Emperor, Schmidt of Frankfort, etc. Contributions are to be addressed to Grunelius & Co., bankers, 16 Gr. Gallus-Strasse, Frankfort on the Main.

Settlement of Sick Benefit Society Troubles.—The Medical Court of Honor for the city and district of Leipsic, Germany, has recently imposed a comparatively heavy pecuniary penalty on 45 local physicians who were accused of conduct conflicting with medical ethics. In the long contest between the organized profession and the sickness insurance societies (*Krankenkassen*), to obtain more equitable remuneration, these physicians sided against the medical officers of the societies. They entered the service of the *Sanitätsdienst*, a new society, which was organized to outwit the former medical officers by some legal quibble. An appeal to the higher court of honor resulted in a confirmation of the verdict, except that the fines were reduced to $75 and $150, with costs. The details of the long struggle between the *Krankenkassen* and their medical officers at various points in Germany are given in detail, week by week, in the *Münchener med. Wochft.* It states that Lübeck has been added to the constantly growing list of cities where the societies and their medical officers have come to a satisfactory agreement without any dispute.

Antimalarial Campaign in India.—The *British Medical Journal* states that a vigorous campaign has been instituted against malaria in the Madras presidency. A few localities were selected where certain experimental operations having for their object the suppression of malaria, could be carried out, and local bodies concerned were invited to allot funds for the purpose. The scheme of the operations comprised: (1) The filling up, or draining, of pools, or the killing of mosquito-larvæ by kerosene oil; (2) the treatment of the inhabitants with quinin, and microscopic observations of the result of the treatment, and (3) the undertaking of drainage works which would permanently relieve subsoil and surface water obstacles. For the carrying out of the experiments in the places selected, the sanitary commissioner, Lieutenant-Colonel King, requested that the services of a commissioned medical officer, as well as of an engineer subordinate, might be placed at his disposal for a period of six months. It is pointed out that the scheme can be applied only gradually, as funds permit, but some operations should be prosecuted every year, and suitable provision made in the budget for that purpose.

The Reversed Tuberculin Test.—Mérieux of Lyons has devised a new tuberculin test by reversing the usual technic. Tuberculin injected into a tuberculous person causes a specific thermic reaction. A similar specific thermic reaction is observed in tuberculous guinea-pigs after injection of organic fluid from a tuberculous human being. In his communication on the subject, in the *Lyon Médical*, CII, No. 13, 1904, he relates his experiences with 18 tuberculous guinea-pigs inoculated with blood serum, urine, serous fluid from a blister or expectorated blood all taken from patients with clinical tuberculosis. The classic thermic reaction was always positive in the cases of known clinical tuberculosis. On the other hand, there was no reaction in the absence of clinical tuberculosis. In case of dubious results, the test was repeated with larger amounts of the human fluid; from .2 to 2 c.c. were used for the tests. He is now studying this "indirect tuberculin reaction" in cases of surgical tuberculosis, meningitis, etc. He is inclined to believe that this specific reaction of the toxin secreted in the diseased organism might be utilized in the majority of microbian diseases accompanied by sufficient production of toxins. He suggests that the method might prove useful for the study of the toxicity of a certain microbe for a given organism.

LONDON LETTER.

Blood-Sucking Insects and Tropical Diseases.

The director of the natural history department of the British Museum has issued a pamphlet on "Bloodsucking Flies," a copy of which has been sent to every army surgeon with the object of assisting those willing to help the museum to obtain specimens. It is thought that physicians and others engaged in improving the sanitation of tropical countries should have the means of determining correctly the names of blood-sucking species with which they may come in contact, and that a well-preserved collection of modern specimens should be available in London for comparison. The British Museum has already dealt with mosquitoes and tsetse flies, on which it has published splendidly illustrated monographs, and it is now proposed to publish on similar lines, a further series of monographs on other blood-sucking insects. The material at present at its disposal is insufficient, and it is, therefore, hoped that all physicians and naturalists residing in British colonies or in any part of the tropics will make special endeavors to obtain specimens and to send them to the director, British Museum (Natural History), London, with notes on the names, habits and distribution of the insects. When a collection is dispatched a separate letter of advice stating the fact should always be sent. The expense of sending collections to the museum will be refunded. As soon as efficient material has been obtained the preparation of the first monograph will be commenced.

The Advisory Board of the Army Medical Service.

A subcommittee, appointed to advise on the preparation and application of antityphoid and other sera, has presented an important report. The subcommittee expresses the opinion that as a general principle it is desirable that therapeutic agents of any kind which may be obtained from ordinary commercial sources should not be manufactured by the Army Medical School or by its professors. At the present time, the sera of admitted therapeutic value, e. g., diphtheria antitoxin, can be procured from several reputable firms, and there is no reason to suppose that their direct preparation by the Army Medical School would result in economy to the state or in the production of a better article, while much valuable time, which would be better devoted to teaching or to research, would be lost to the professors. On the question of the preparation and application of antityphoid fluid the subcommittee finds itself in some difficulty, as the efficacy of this remedy is still in dispute. For the purpose of dealing with the statistics at present available the subcommittee asked Lieutenant-Colonel Bruce to prepare a paper which forms an appendix to the report. His conclusion is that the general statistics available up to the present are not sufficiently extensive nor exact to permit of any conclusions being drawn as to Wright's antityphoid inoculation.

Fatal Case of Plague in the Mersey.

A case of plague is reported in the Mersey on the steamship *Crewe Hall*, which arrived from Rangoon, January 30. The captain reported "all well," but on February 1 a customs officer noticed a lascar sick in his bunk and apparently dying. On inquiry he was informed that the man had had a severe cold for the previous week. The port health officer was sent for, but when he arrived the man was dead. He found that the chief steward had treated the lascar for high fever, which he thought was due to malaria, but he mentioned that there was a painful swelling in the groin. The lascar was laid out in the native sailor's forecastle. On examination, all that could be discovered was a large bubo in the left femoral region. As there was a suspicion of plague it was decided to act as if that was the cause of death. The body was removed, and all the effects of the native crew were disinfected. The "contacts," who numbered 15, were bathed and dressed in disinfected clothing and removed to the port sanitary hospital for isolation. The port rat-catchers were sent for, but could find no dead or sick rats. They set traps and caught 11 rats, which were forwarded to Professor Boyce for bacteriologic examination. February 2, further disinfection of all suspected quarters of the ship was carried out. The cargo was discharged under strict supervision, and a careful watch for dead rats was kept. The holds were fumigated in order to destroy all rats. On February 2, a necropsy was performed on the body of the man. The skin over the bubo was markedly discolored. The bubo was very large and hemorrhagic on section, with much periglandular inflammation. There was also evidence of a septicemic condition, with a considerable amount of pneumonia. Microscopic examination of the gland juice showed numerous plague bacilli. The source of infection could not be ascertained, but the medical authorities think there is little danger of further infection.

Sterilizing Water in the Field.

A number of devices for the sterilization of drinking water for troops in the field were exhibited at Millbank Barracks. Three main methods were represented depending respectively on chemical means, on filtration, and on heat. Of chemical processes there were 6. The first, that of Schumburg, consisted of a bromin solution (bromin, potassium bromid, and water) in glass capsules containing 2 c.c. each. A capsule is broken into a liter of water, which, after a period varying from ten to thirty minutes, is treated with a mixture of sodium sulphite and carbonate which neutralizes the bromin and removes its odor in about two minutes. Experiments show, however, that the water is liable to have a stale taste, and the necessity of carrying about in the field a number of fragile capsules containing liquid is an obvious objection to this method. The second process, that of Vallard and Georges, depends on the action of iodin. Three tablets are used containing respectively iodate of soda, iodid of potassium, and a blue coloring matter; tartaric acid with a red coloring matter, and hyposulphite of soda. Sterilization requires ten minutes, and when complete the water has no smell. In the third process (Nessfield's) the water is first treated with bleaching power and bicarbonate of soda, and after sterilization is complete, in about ten minutes, sodium sulphite is added to render it free of chlorin and tasteless; but it seems to be difficult to do this perfectly. The fourth process consists in the addition of about 15 gr. of bisulphate of soda to each pint of water. It was tried in South Africa, but the men objected to the taste imparted to the water; this, however, can be removed by the addition of sodium bicarbonate. A further objection is that the treated water takes up iron from the water bottles. The fifth process is the old one of adding potassium permanganate. The color imparted is not liked by the men. The sixth process consists in the use of copper sulphate or chlorid. The experiments of Dr. George Moore, of the scientific staff of the United States Government, seem to show that a sulphate of copper solution of the strength of 1 in 100,000 kills both typhoid and cholera bacilli in four or five hours. However, experiments made in Great Britain by Rideel and Barnes show that this strength is ineffective, though a 1 in 10,000 kills typhoid bacilli, but not cholera bacilli, and 1 in 1,000 kills both. In the second class of apparatus depending on filtration various forms of the Slack & Brownlow field service filter were on view; also a service water cart fitted with this filter. The other water carts were the Bailey-Denton, with a clarifying filter of charcoal and a Berkefeld filter for sterilizing; and the Lefebvre with a filter of asbestos and charcoal. All the filters had the disadvantage that the rate of flow soon falls off, and if not cleaned and boiled frequently they become worse than useless. Five kinds of appliances in which heat is used for sterilizing were shown. Of these the Lehigh-Canney is merely a device for boiling water rapidly, unprovided with any cooling arrangement. Another shown was the Griffiths machine, in which the water is not boiled, but raised to 175 F., which the inventor claims is more than sufficient to destroy all water-borne pathogenic organisms. It weighs 120 pounds. In the tests it was found to deliver 60 gallons of sterilized water per hour, with a consumption of one and a half pints of oil. The other machines delivered water at a temperature of 20 or 25 lower, but their yield was much smaller.

Cancer Research in the Colonies.

The correspondence relating to cancer research in the colonies has just been published as a parliamentary paper. The dispatches cover the period from May 27, 1903, to Nov. 30, 1904, and there is an appendix containing letters to the Imperial Cancer Research Fund, from the principal medical officers of Lagos and Fiji, respectively. Mr. Chamberlain, when colonial secretary, issued a circular to the governors and high commissioners of all the colonies and protectorates announcing the starting of a fund in Great Britain to promote investigations into the causes, prevention and treatment of cancer, and requesting the officials to whom it was addressed to promote this object by all possible means. In a supplementary circular sent by Mr. Chamberlain's successor, it is pointed out that the facts accumulated up to that time appear to show that cancer is less frequent among aborigines than in civilized races, and that the committee of the Cancer Research Fund desire that the cause of this rarity should be more fully investigated. The greater number of the returns merely state that steps are being taken to carry out the wishes of the committee, but the governor of the Gambia says that so far as the senior medical officer is aware, cancer is unknown among West African natives. According to the acting governor of British Honduras, cancer occurs in that colony, and investigation is promised. Reports from the Leeward Islands, and from Mauritius state that cancer is not so frequent there as in England. It is apparently rare in British Central Africa. A return from Barbadoes gives the total number of deaths from cancer in the five years 1899-1903, as 120 out of 4,196 total deaths. From the Transvaal has been received a return of 9,578 cases of cancer in Europeans and natives in the year 1903. In Ceylon, during 1903, there were 237 cases of malignant disease, of which 222 were carcinoma and 15 sarcoma.

The Chemistry of Yellow Fogs.

Professor Knecht of the Manchester School of Technology has made an interesting investigation on the composition of fogs. In the school huge fans drive the air from the inlets. Before reaching the fans it passes through a filter consisting of 100 galvanized corrugated iron sheets fixed on edge three-fourths of an inch apart. The air meets a fine spray of water, and passing through screens and fans is heated by exhaust steam. The bulk of the impurities are thus removed and fall with the water into two chambers. After the November fog, the matter taken from these chambers was black, as if it consisted of soot, but on drying it became gray, and left on ignition a large amount of ash. It contained only small quantities of hydrocarbons and phenolic constituents. The percentage of ordinary soot was small. During the fog of December 22, more exact analyses were made from the matter filtered out from air passing through the screens at the rate of 300,000 cubic feet per hour, with a flow of water of 240 gallons. The water became black and greasy-looking. It contained a small quantity of black solids in suspension. The filtrate had an acid reaction due chiefly to sulphuric acid, the acidity being equal to 6.2 gr. per gallon. The total solids of the wash water were in the proportion of 91.7 gr. per gallon. They consisted of a considerable quantity of iron in the ferrous and ferric states, ammonia, lime, magnesia, a trace of arsenic, and sulphuric and hydrochloric acids. The iron probably came from the screens, but the other parts of the matter probably from the high chimney near the school, in which the combustion of the coal was far more perfect than in house fires.

The Hospitals of London.

The maintenance of hospitals furnishes a perennial topic to the press. On the one hand, there are the unceasing appeals to the benevolent to come to the rescue of deserving institutions which are heavily in debt, and which, in the absence of further support, must have their activities curtailed. On the other hand, there are constant complaints from physicians that the hospitals are abused by persons who can well afford to pay for medical treatment. Sir Henry Burdett, the well-known authority on hospital management, has contributed to the *Times* an important statistical article on the resources and requirements of the London hospitals. He admits that evidence accumulates every year to prove that the present system of free medical relief is wrong in principle and harmful in practice to the self-respect and thrift instincts of the population. Taking the population of London as 4,600,000 in 1903, he finds by excluding the persons engaged in the various middle class callings who are ineligible for free hospital treatment, that about 50 per cent., or 2,300,000, represent possible hospital patients. Now in 1903 216,000 persons were treated as in-patients and 2,086,000 as out-patients, making a total of 2,300,000, and therefore representing the total of possible patients. By comparing the figures of 1903 with those of ten years previously, it is found that while the population in 1903 was 6 per cent. greater than in 1894, the applicants to hospital was 23 per cent. greater. No wonder that physicians everywhere complain of the competition of the free medical relief given by hospitals. The conclusion follows that the hospital needs of London are more than provided for. Out of the vast army of applicants a vast proportion must be able to pay for treatment. In 1903 the expenditure on the 94 voluntary hospitals (that is excluding dispensaries, poor-law infirmaries and municipal hospitals for the treatment of infectious diseases) amounted to $6,700,000, for which 9,771 beds were maintained for the treatment of 112,000 in-patients; 1,646,000 out-patients were treated. The expenditure on the voluntary hospitals has considerably increased in the last ten years; in 1894 it was only $4,100,000, so that an increase of over 60 per cent. took place in the decade. This increase of expenditure appears to be partly the result of the great efforts put forward to finance the hospitals, of which the most important was the fund established by the king in 1897.

The Sanatorium Treatment of Consumption.

The results of the sanatorium treatment of consumption appear to fall short of the high hopes that were entertained by many when the treatment was first brought prominently before the profession, and of the claims which have been put forward by many of its advocates. The report for 1904, of the Heswall Poor-law Sanatorium, which receives patients from Liverpool and from some adjacent towns, has been presented. Of 38 patients from Liverpool who have left the sanatorium during the two years of its existence 8 have been lost sight of. The histories of the remaining 30 are as follows: One died of Bright's disease, one is a chronic invalid *from a non-tuberculous illness*, and two are well enough to work and are believed to be in good health and free from tuberculosis. Of the remaining 26, 8 have died of tuberculosis and the rest are either inmates of the parish hospital, suffering from tuberculosis, or are in failing health from this cause. Thus, out of the 30 only 2 are in good health at the present time. These disappointing results are attributed chiefly to the fact that very few of the patients applied for treatment in the early stage. Of those who did few were able or willing to submit to the restrictions of sanatorium life. On discharge they were obliged to return to their conditions of poverty, bad sanitation, and unsuitable occupation. These conditions may explain the unsatisfactory results, but even in patients in a better position in life, to whom none of these statements apply, similarly unsatisfactory results are often obtained.

Correspondence.

Treatment of Hemoptysis.

London, Jan. 21, 1905.

To the Editor:—In an article entitled "The Control of Internal Hemorrhage by Drugs," Dr. Thomas Luther Coley says: "This group (nitroglycerin and the nitrites) has been recommended for pulmonary hemorrhage. It would seem, however, that the general widening of the blood paths, together with the fact that the heart beats more rapidly under the lowered pressure, would contraindicate its employment. The general widening of the blood paths will frequently increase the caliber of the vessels of the bleeding area."

It is a question whether an increase in the caliber of the vessels of a bleeding area is of any importance in circumstances which provide for a fall of blood-pressure in that area. This, however, applies to hemorrhage from the systemic, not from the pulmonary, circulation. In the latter, it is highly improbable that an increase of caliber ever occurs through the action of the nitrites; for the experiments of Drs. T. C. Brodie and W. E. Dixon seem to show that the pulmonary arterioles are destitute of vasomotor nerves and that, consequently, agents which promote constriction of the systemic arterioles tend to cause pulmonary engorgement. Hence it is to be anticipated that agents which promote dilation of the systemic arterioles will tend to cause pulmonary ischemia.

That the heart beats more rapidly under the action of the nitrites, must, of, course, be admitted. The increased rapidity of the heart in these circumstances may be regarded as a conservative device adapted to maintain the blood-pressure. Yet it is certain that such conservative action is never fully adequate, since, as Lauder Brunton and others have shown, the nitrites always produce a fall of blood-pressure. The use of the nitrites in hemoptysis does not now depend on à *priori* considerations, however well founded. In the *Lancet*, Aug. 20, 1904, p. 522, and Oct. 1, 1904, p. 942, under the head of "The Medical Treatment of Deep-Seated Hemorrhage," and in the same journal, Jan. 21, 1905, under the head of "The Treatment of Hemoptysis," I contributed a series of 9 cases in which 18 attacks of hemoptysis (17 phthisical, 1 mitral), with one exception, had been stopped within three minutes by inhalation of amyl nitrite. In the one exception, the bleeding continued in reduced amount for ten minutes. The dilative action of the drug on the systemic arterioles is evanescent, probably enduring but a few minutes; yet in only one case of the 18 did bleeding recommence within two hours (half an hour) and in nearly half the cases recurrence was absent (leaving out of account the usual continuance of slightly-tinged sputa). Such results I think are better than were to have been anticipated. Two considerations render amyl nitrite peculiarly suited for the treatment of hemoptysis: 1. The drug may be kept ready to hand and may be used immediately by the patient himself in the absence of the medical attendant and nurse, and it can be used as often as may be necessary. Its practically instantaneous effect restores the patient's confidence, since he feels that he has it in his own power to stop the bleeding. This is of importance because there can be no doubt that fright or anxiety tends to cause a rise of blood-pressure (probably through increasing peripheral vasoconstriction), and so to reinduce hemoptysis. 2. The drug has no influence in suppressing cough. It is the influx of blood to the ulcerated and septic lung tissue, not the efflux of blood from the air-passages, which is checked. Hence the intrapulmonary effusion is rapidly got rid of. In none of the nine cases was there the least subsequent additional rise in the daily temperature range, or other sign of pneumonia. This is in distinct contrast with my experience of cases of hemoptysis treated by morphia hypodermically.

Francis Hare, M.D.

Marriages.

Clara A. Bruce, M.D., to John F. Rusz, both of Norwood, Cincinnati, February 14.

Charles W. Brasfield, M.D., to Miss Maggie Braswell, both of Sweetwater, Ala., January 25.

Frank Eliot Stetson, M.D., New Bedford, Mass., to Miss Sigrid Moller of New York City.

Isaac E. Green, M.D., to Miss Margaret Williamson Brickell, both of Weldon, N. C., February 16.

Patrick K. Wortham, M.D., Waco, Texas, to Mrs. E. A. Howard of Eddy, Texas, February 12.

H. R. Kauffman, M.D., Monroe, Wis., to Miss Emma G. Beach of Columbus, Ohio, February 12.

T. M. Walsh, M.D., Sutton, W. Va., to Miss Gertrude Haymond of South Sutton, W. Va., February 10.

William B. Campbell, M.D., Menomonee Falls, Wis., to Miss Belle Bannon of Waukesha, Wis., February 13.

J. H. Eugene Rosamond, M.D., Grand Lake, Ark., to Miss Anna Jane Trotter of Winona, Miss., March 1.

Benjamin William Dudley, M.D., Lexington, Ky., to Miss Ethel Croxall Slingluff, Baltimore, February 21.

Deaths.

Albert B. Prescott, M.D., Ph.D., LL.D., for 40 years a member of the faculty of the Department of Medicine and Surgery of the University of Michigan, died from organic heart disease, February 25, aged 72. He was graduated in medicine from the University of Michigan in 1864, and served for one year as assistant surgeon in the Army. In 1865 he was appointed assistant professor of chemistry, and five years later his title was changed to professor of organic and applied chemistry. Since 1876 he has been dean of the pharmacy department, and since 1884 director of the chemical laboratory. He was president of the American Association for the Advancement of Science in 1891, and has been honored by election to numerous foreign chemical societies. As an author he has produced the following books: "Outlines of Proximate Organic Analysis"; "Chemistry of Alcoholic Liquors"; "Qualitative Chemical Analysis"; "First Book of Qualitative Chemistry," and "Manual of Organic Analysis." His original contributions to current chemical literature were numerous and of high grade, and as a teacher he has inspired many students who, following his example, have enriched science by their researches.

John H. Claiborne, M.D. University of Virginia, Charlottesville, 1849, Jefferson Medical College, Philadelphia, 1850; surgeon of the Twelfth Virginia Infantry, C. S. A., during the Civil War; who organized and equipped many hospitals, served in both houses of the legislature, and was ex-president of the Medical Society of Virginia, and member of the Southern Surgical and Gynecological Association and of the American Public Health Association, died at his home in Petersburg, Va., February 24.

Edward C. W. O'Brien, M.D. University of Buffalo Medical Department, 1867, a curator of the University of Buffalo; five times health officer of Buffalo; consulting physician to Providence Retreat for the Insane; surgeon to the Buffalo Fire Department; formerly surgeon of the Seventy-fourth Infantry, N. G., New York; ex-president of Erie County Medical Society and the University of Buffalo Alumni Association, died at his home in Buffalo, from influenza, February 25, after a short illness.

John H. Granniss, M.D. Medical Institution of Yale College, New Haven, Conn., 1868, a member of the American Medical Association; some-time president and vice-president of the Connecticut Medical Society, a veteran of the Civil War, and in the hospital corps of the Army and Navy, for several years health officer and medical examiner of Saybrook, Conn., died at his home in that place, February 17, from influenza, after an illness of one month, aged 60.

Charles E. Clark, M.D. Rush Medical College, Chicago, 1886, of Kansas City, Mo., a member of the American Medical Association and the Missouri State Medical Association; ex-president of the Jackson County Medical Society; professor of laryngology, Kansas City Medical College, a specialist on diseases of the nose and throat, died from tuberculosis in Colorado Springs, where he had gone for his health, February 17, after an illness of six months, aged 47.

Alfred Hadley Lindley, M.D. Jefferson Medical College, Philadelphia, 1850, a pioneer practitioner of Minneapolis, and one of the founders of the Hennepin County Medical Society, died at his home in Minneapolis, February 16, from pneumonia, aged 83. The Hennepin County Medical Society, at a special meeting, February 17, passed resolutions of regard and regret and appointed a committee to represent the society at the funeral.

Alonzo I. Hunt, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1895, president of Hamilton Township Board of Health, died at his home in Hamilton Square, N. J., February 13, from pneumonia, after an illness of six days, aged 34. The Mercer County Medical Society, at a special meeting, February 14, appointed a committee to draft a memorial on Dr. Hunt, and a committee to attend his funeral.

Joseph B. Whiting, Jr., M.D. College of Physicians and Surgeons of Chicago, 1887, a member of the Association of Military Surgeons of the United States; major and surgeon of the First Infantry, N. G. Wis.; surgeon of the First Wisconsin Infantry, U. S. V., during the Spanish-American War, died suddenly at his home in Janesville, Wis., February 19, aged 39.

Alfred L. Buchan, M.D. Rush Medical College, Chicago, 1871, of Racine, Wis., a member of the Wisconsin State Medical Society, and for several years a member of the State Board of Health, died at the home of his brother in Dover, Wis., February 17, from cancer of the liver, after an illness of more than a year, aged 57.

Otto Kohlhase, M.D. Marion Sims-Beaumont College of Medicine, St. Louis, 1903, assistant surgeon, U. S. Navy, died from yellow fever on board the U. S. S. *Boston*, at Panama, January 28, after an illness of eight days, aged 27. He was buried in the Arlington National Cemetery, February 20, with military honors.

Flavius J. Downer, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1871, assistant physician at the Upper Peninsula Hospital for the Insane, Newberry, Mich.; formerly chief surgeon for the Quincy Mine, Hancock, died suddenly at Newberry, February 18, from heart disease, aged 67.

Obadiah V. Garnett, M.D. Jefferson Medical College, Philadelphia, 1855, of Paterson, N. J., surgeon in the Confederate service during the Civil War; for many years local surgeon of the Erie Railway, died in the Paterson General Hospital, February 17, from chronic nephritis, after a long illness, aged 70.

Henry E. Woodbury, M.D. University of Georgetown Medical Department, Washington, D. C., 1863, acting assistant surgeon in the Army during the Civil War; for more than fifty years a resident of Washington, D. C., died at his home in that city, January 15, from chronic bronchitis, after a long illness.

Abner Render Wellborn, M.D. New York University, New York City, 1845, surgeon in the Confederate service during the Civil War; some-time clerk of the Superior Court of Coweta; for many years a practitioner of Atlanta, died at the home of his daughter in Columbus, Ga., February 4, aged 83.

Richard W. Sanders, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1851, a member of the Virginia House of Delegates, 1893 and 1894; president of the Southwest Virginia Medical Association, died at his home in Max Meadows, Va., February 3, aged 68.

James T. Berry, M.D. University of Louisville Medical Department, 1875, some-time superintendent of the Kentucky Institute for the Education and Training of Feeble-Minded Children, Frankfort, died suddenly at his home near Lagrange, Ky., February 20, aged 64.

John A. Westerfield, M.D. University of Louisville Medical Department, 1880, but a practitioner for 58 years; a surgeon in the Mexican and Civil wars; for many years in Atkins, Ark., died at his home in McGregor, Texas, February 3, from senile debility, aged 84.

William W. Whitney, M.D. University of Michigan Department of Medicine and Surgery, Ann Arbor, 1862; acting assistant surgeon during the Civil War; formerly of Union, N. Y., died at his home in St. Augustine, Fla., January 22, from pneumonia, aged 76.

James Taylor Pirtle, M.D. St. Louis Medical College, 1864, one of the oldest members of the St. Louis Medical Society, surgeon in a Missouri regiment during the Civil War, died at his home in St. Louis, February 19, after an illness of several years, aged 69.

J. Theron Renouff, M.D. Southern Medical College, Atlanta, 1887, late professor of materia medica and therapeutics in the Woman's Medical College of Georgia, Atlanta, died suddenly from angina pectoris at his home in Atlanta, February 13, aged 55.

Henry R. Brown, M.D. New York, 1867, a member of the American Medical Association; for several years chairman of the Board of Health of Leominster, Mass., died at his home in that city, February 16, from erysipelas, after a short illness, aged 63.

Reuben L. Shimer, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, of Washington, D. C., died at the home of his nephew in Redington, Pa., February 14, from cerebral hemorrhage, after a short illness, aged 71.

Abel N. Witherspoon, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1854, surgeon in the Confederate service during the Civil War, died at his home in Corsicana, Texas, February 10, from influenza, aged 76.

William C. Blackman, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1847, one of the oldest physicians of Davidson County, Tenn., died at his home near Overton Station, February 14, after a long illness.

George O. Cummins, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1868, a member of the county and state societies, died at his home in Dover, N. J., February 14, after an illness of eight days, aged 62.

Samuel L. Green, M.D., twice a member of the Nebraska legislature, and at the time of his death county judge of Red Willow County, died at his home in McCook, Neb., January 29, twelve days after a fracture of the femur, aged 82.

Spencer Van Dalsen, M.D. College of Physicians and Surgeons in the City of New York, 1876, died at his home in Paterson, N. J., February 16, from bronchopneumonia, following influenza, after an illness of several weeks, aged 52.

Thomas B. Bloomfield, M.D. College of Physicians and Surgeons in the City of New York, 1876, for many years district medical examiner, died at his home in Westbrook, Conn., February 17, from heart disease, aged 60.

John Jackson Dearing, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1847, died at his home in Covington, Ga., January 30, from senile debility, after an illness of twelve days, aged 82.

Israel T. Hunt, M.D. Harvard University Medical School, Boston, 1870, while delirious, jumped or fell from the second story of his house in Charlestown, Boston, February 16, and was instantly killed, aged 65.

Henry B. Fay, M.D. Howard University Medical Department, Washington, D. C., 1881, of Minneapolis, died at the Swedish Hospital in that city from nephritis, February 11, after a brief illness, aged 46.

William F. Robertson, Jr., M.D. Tulane University of Louisiana Medical Department, New Orleans, 1860, died suddenly from cerebral hemorrhage at his home in Iamonia, Fla., February 8, aged 64.

Richard E. Parker, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1857, died at his home in Suffolk, Va., February 20, from pneumonia, after a short illness, aged 74.

William B. Watford, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1861, died at his home in Colerain, N. C., Dec. 11, 1904, after an illness of three weeks, aged 80.

James B. Houston, M.D. Medical College of Ohio, Cincinnati, 1882, of Charleston, W. Va., died at the Virginia Hospital, Richmond, Va., February 20. He was on his way to Florida for his health.

Lanford Prater, M.D. Medical College of Indiana, Indianapolis, 1872,, died at his home in Lakeview, Ohio, after an illness of six weeks, from the effects of a carbuncle, February 9, aged 64.

James M. Culbertson, M.D. Miami Medical College, Cincinnati, 1855, died at his home in Alliance, Ohio, from cystitis and vesical catarrh, January 30, after an illness of three years, aged 75.

Elisha Roach, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1860, died at his home in Tatamagouche, Nova Scotia, February 13, after a lingering illness, aged 68.

D. Newell Waterbury, M.D. Cincinnati, 1874, formerly of Liverpool, N. Y., died at the State Odd Fellows' Home, Syracuse, from pneumonia, January 24, after a short illness, aged 68.

James G. Wingo, M.D. Missouri Medical College, St. Louis, 1881, formerly of Lock Spring, Mo., died at his home near Wright, Texas, February 15, after an illness of three or four years.

Edwin A. Oppelt, M.D. Cleveland Medical College, Medical Department of Western Reserve College, 1858, died at his home in Loogootee, Ind., February 18, after an invalidism of six years.

Alfred C. Post, M.D. Harvard University Medical School, Boston, 1891, of Salt Lake City, Utah, died in Denver, Nov. 26, 1904, from heart disease, after an illness of two years, aged 37.

Thomas B. Jefferson, M.D. Medical Department of the University of Tennessee, Nashville, 1889, died at his home in Golden Pond, Ky., February 9, from hemorrhage of the lungs.

Elihu Russell Houghton, M.D. Bellevue Hospital Medical College, 1888, formerly of the U. S. Navy, died at his home in New York City from appendicitis, February 19, aged 40.

James Paxton Barclay, M.D. New York University, New York City, 1871, died at his home in Eutaw, Ala., February 13, from heart disease, after an illness of two days, aged 57.

George Osborn, M.D. Cincinnati College of Medicine and Surgery, 1874, died at his home in Sebree, Ky., February 12, from pneumonia, after an illness of five days, aged 57.

John Stafford, M.D., a graduate of Hobart College, the oldest physician in the vicinity, died at Rochester, N. Y. He would have been 100 years old had he lived until March 15.

Luther C. Bean, M.D. Vermont Medical College, Woodstock, 1849, the oldest practitioner of Waukegan, Ill., died at his home in that city from pneumonia, February 22, aged 84.

Mortimer Wright Shaw, M.D. Long Island College Hospital, Brooklyn, N. Y., 1892, of New York City, died at Middletown, N. Y., from typhoid fever, February 22, aged 37.

J. Gustave Schild, M.D. Ohio, 1898, of Toledo, died at Lexington Heights Hospital, Buffalo, N. Y., February 17, from typhoid fever, after an illness of three weeks, aged 32.

Nathaniel P. Duncan, M.D. Bellevue Hospital Medical College, New York City, 1871, died suddenly at his home in Hanford, Cal., from heart disease, February 15, aged 55.

Milton H. Thomas, M.D. Hygeio-Therapeutic College of New York City, 1856, formerly of Barnett, Ga., died at the home of his daughter in Lake City, Fla., February 2.

Charles D. Sutton, M.D. Cincinnati, 1895, of Findlay, Ohio, died, January 30, in Christ's Hospital, Cincinnati, from tuberculosis, after an illness of two years, aged 35.

Matthew A. Quirk, M.D. Medico-Chirurgical College of Philadelphia, 1898, died recently at his home in Sayre, Pa., and was buried at Auburn, N. Y., February 13.

Adolphus E. Fant, M.D. Medical College of the State of South Carolina, Charleston, 1836, died at his home in Santuck, S. C., February 11, after a long illness.

Newton F. Sweatman, M.D. Albany (N. Y.) Medical College, 1872, died at his home in Amsterdam, N. Y., February 18, from influenza, after a brief illness, aged 52.

Charles Shackleford, M.D. who had been out of practice for twenty-five years, died at the Western Kentucky Hospital for the Insane, Nov. 27, 1904, aged 84.

Jeremiah N. Sharp, M.D. Medical Department of the University of Iowa at Keokuk, 1863, died at his home in Stockton, Ill., February 22, from pneumonia.

Darius W. Dundor, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1879, died at his home in Womelsdorf, Pa., aged 48.

Henry Baxter Wilson, M.D. Tennessee Medical College, Knoxville, 1892, died suddenly at Colfax, Cal., from an overdose of morphin, Dec. 30, 1904, aged 65.

Henry J. Snow, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1857, died at his home in Kaufman, Texas, January 6, aged 78.

William Edward Griffiths, M.D. College of Physicians and Surgeons in the City of New York, 1868, died at his home in Brooklyn, February 21, aged 63.

R. J. Scott, M.D. Years of Practice, Missouri, died at his home in Brookfield Township, Linn County, Mo., Dec. 11, 1904, from angina pectoris, aged 67.

Thomas Cushing Wallace, M.D. Ohio, 1868, died at his home in Allegheny, Pa., February 16, from pneumonia, after an illness of one week, aged 65.

Alvin E. Garrett, M.D. University of Louisville Medical Department, 1892, died at his home in Sulphur Springs, Texas, February 8, aged about 50.

Richard Owen, M.D. University of Glasgow, Scotland, 1866, died at his home in Pomeroy, Ohio, February 8, after an illness of two years, aged 60.

Louis Rick, M.D. University of Bonn, Germany, 1865, died at his home in Gridley, Kan., January 27, after an illness of four months, aged 62.

Amos C. Williamson, M.D. Beaumont Medical College, St. Louis, 1889, died suddenly at his home in Kerens, Texas, February 6, aged 35.

William R. King, M.D. Harvard University Medical School, Boston, 1890, died at his home in Boston, February 17, from nephritis, aged 37.

John J. Wilson, M.D. College of Physicians and Surgeons, Baltimore, 1886, died at his home in Bristol, Conn., from pneumonia, aged 51.

Arthur H. St. John, M.D. New York, 1892, of Walton, N. Y., died at a hospital in New York City, February 3, after a long illness, aged 48.

Milton Elmer Hammer, M.D. University of Maryland School of Medicine, Baltimore, 1890, died at his home in Baltimore, February 24.

Edwin C. Austin, M.D. Illinois, 1885, died at his home in Elkhorn, Wis., February 11, after an illness of two weeks, aged 44.

Dwight W. Rector, M.D. Albany (N. Y.) Medical College, 1853, died at his home in East Troy, N. Y., February 20, aged 80.

W. L. Huggins, M.D. Albany (N. Y.) Medical College, 1899, died at his home in Alicia, Ark., February 13, from smallpox.

B. B. Drane, M.D., died at his home near Torrance, Miss., January 23, after an illness of several years, aged 74.

Lorenzo Driggs West, M.D. New York, 1849, died at his home in Painesville, Ohio, Dec. 29, 1904, aged 80.

Henry R. Worthington, M.D. Pennsylvania, 1886, died at Trenton, N. J., February 23, aged 41.

J. W. Wade, M.D., died from exposure at his home in Eldon, Mo., aged about 65.

Miscellany.

Why Patent Medicines Are Dangerous.

In the March issue of the *Ladies' Home Journal*, the editor, Mr. Edward Bok, calls the attention of his readers, and of women in particular, to a few facts which he says are not theories nor guesses at the truth, but facts—as they exist. First, no physician of standing in his profession, who discovers any formula or any new method of alleviating the illnesses or sufferings of humanity, ever keeps such a formula to himself or for his self-gain. No sooner does an honorable physician bring such a discovery to a point of proved efficiency than he freely and unreservedly announces it, in order that other physicians may use it for the benefit of humanity. As instances of this, Mr. Bok cites the discovery of the use of ether, antisepsis, the rest cure, and the *x*-rays.

The "patent-medicine doctor," on the other hand, does not give his valuable formula to the profession for its members to give to the world of suffering. He applies for a patent or for a trade-mark, and makes use of his discovery only for self-gain. As Mr. Bok puts it, "he is a doctor for the money there is in it: not for the good he can do." Furthermore, no one but the discoverer knows the ingredients of his product, for a trade-mark is granted on the name and not on the formula. There exists no control, government, state or medical, over the formula. The purchaser has no assurance that the ingredients of one bottle are identical with the next one. If the market price of one of the ingredients becomes higher, there is nothing to hinder the compounder from substituting either a cheaper quality of the same ingredient or an entirely different substance, as, for instance, wood alcohol used in place of pure alcohol, and prussic acid used in place of wild cherry bark.

Mr. Bok also points out the fallacy of anyone prescribing for thousands whom he can not see and from whose symptoms he can not possibly know whether his medicine is best for them or not. Repeated attempts to enact laws compelling patent-medicine manufacturers to print on the label of each bottle or package the exact drugs used in the medicine therein have been frustrated; these manufacturers would not dare to print the ingredients of their products, because "in revelation lies disaster"; and yet women will unhesitatingly take into their systems concoctions, the ingredients of which these men dare not reveal. If the public were once to know exactly what is in the average secret nostrum, the greater part of the patent-medicine industry of this country would see its finish so quickly that the public itself would be amazed. An analysis of patent medicines often reveals most astounding facts. Many contain enormous quantities of alcohol, one preparation as high as 65 per cent.; a soothing syrup may contain morphin; other preparations contain dangerously large doses of chloroform and ether, and so on.

The patent-medicine manufacturer must look chiefly to women for the maintenance of his business. If the American woman would withhold her patronage from these secret nostrums, the greater part of the industry would go to pieces. Mr. Bok's article touches on many phases of this question, chief of which, however, is the one dealing with the fact that these men are attempting to treat conditions of which they know nothing, existing in persons whom they can not see, with so-called medicines that often are not only ill-advised, but at times positively dangerous.

Medical Science Is Advancing.—Text-books quickly become obsolete and succeed one another so rapidly that it is almost impossible for the busy practitioner to keep up with them. Medical journals keep physicians posted in the latest developments in medical work. They are a constantly renewed text-book on all branches of medicine. Commenting on this view, the *Semaine Médicale* very pertinently exclaims: "This is what we medical journals are here for!"

Cod-Liver Oil Must Be Pure in Ohio.—The Dairy and Food Commission of Ohio has decided that cod-liver oil is a food. This ruling accords with the ideas of physicians, who usually give it more as a food than as a medicine. The commission has ruled that all the wines, essences, cordials, or so-called active principle preparations of cod-liver oil, can not in the future use the name cod-liver oil, for the plain and simple reason that they do not contain the oil.

Legible Prescription Writing.—*Meyer Brothers' Druggist* urges that physicians in writing prescriptions ought not to lose sight of the fact that signs of quantities indistinctly written lead to mistakes in compounding. The scruple sign and dram sign and the dram and ounce signs are frequently so badly made that it is impossible to discriminate between them, unless, of course, one can judge by the doses. This, however, is not always possible, especially in prescriptions bearing "Use as directed" label, or no directions at all.

Simplified Intratracheal Injections.—Mendel of Paris (*Bull. de la Soc. Méd. des Hôpitaux*, Paris, xxi, No. 35, 1904) draws the tongue of the subject forward and holds it firmly. The enpharynx serves as a funnel opening into the trachea, the entrance into the esophagus being completely closed by the traction on the tongue. A fluid injected against the wall of the pharynx flows down spontaneously into the air passages, as was conclusively established by tests on a tracheotomized subject with colored oil. If the fluid used is not irritating, there are no reflex phenomena as it runs down.

Indirect Organ Therapy of Exophthalmic Goiter.—The leading article in the first number of the new German medical periodical, *Medicinische Klinik*, is by von Leyden. It reports very satisfactory results obtained in a number of cases of exophthalmic goiter by administration of the active substance isolated from the milk or blood of goats deprived of the thyroid gland. Burghart, Blumenthal, Madsen of Copenhagen and Möbius of Halle have each experimented in this line, the latter using the blood of thyroidectomized wethers for subcutaneous injection or ingestion per os. Madsen gives the dried blood of thyroidectomized goats, Burghart, the active substance isolated from the milk. (See The Journal, xl, page 680, and xli, page 995.)

The Amenities of the Medical Profession.—The editor of the *Gaz. Méd. Belge* vouches for the truth of the following story told by a French physician: He was summoned in haste to a consultation in a case of placenta previa. The husband asked whether they would guarantee to save his wife, and was told that the physicians would guarantee nothing, but would do their utmost to save her. He walked nervously to and fro in the next room during the two hours before the physicians could announce that all danger was past. He remarked then that they were lucky, as he had fully intended to shoot them—producing a revolver from his pocket—if his wife had died. When the physician's bill for $200 was presented the husband protested most vigorously against the charge, but the physician merely remarked: "My skin is worth more than $200," and the amount was paid without further ado.

Straw Charcoal Dressings of the Japanese.—Correspondents in the Far East have had considerable to say in regard to the fine, inexpensive absorbent dressings used by the Japanese. The Journal has previously described the way of making the straw charcoal used for these dressings. Any straw will answer, either fresh or old, soiled or clean, but rice straw is generally used there, as it is so common. It is placed in an iron vessel or on the stone or dirt floor of a room, and set on fire, the vessel being covered or the doors and windows of the room being closed to diminish the supply of oxygen. The straw charcoal thus made is aseptic and very absorbent, and can be obtained without expense anywhere. It is applied to wounds in a linen bag of the proper size, and these bags are all that have to be kept on hand, as the straw is obtainable anywhere. This dressing is the invention of Surgeon-General Kikuzi, it is said, and has been extensively used for several years, with constantly increasing satisfaction.

Bulbar Symptoms of Toxic Origin Secondary to Carcinoma.—Some support appears to be given to the view that carcinoma is a parasitic disease by the cachexia and the blood depravity that so commonly develop and by symptoms of derangement of the nervous system, phenomena that can be most readily explained on the basis of an intoxication secondary to a hypothetical infective process. Manifestations of the second category have been observed independently of direct involvement of the nervous system, to any part of which they may be referable. Thus coma, mental apathy, psychic disturbances, hemiplegia with or without aphasia, or the latter alone, monoplegia, convulsions, bulbar, pontine and spinal symptoms have been noted. Especial reference to bulbar symptoms complicating carcinoma of other parts than the nervous system has been made by Dr. T. H. Weisenburg (The Journal, Feb. 11, 1905, page 502). The alterations mentioned are comparable to those that have been described as occurring in conjunction with uremia.

"Chronic Mumps of the Lachrymal Glands."—At a recent meeting of the Berlin Medical Society, Marcuse presented a case of what has been called—in the absence as yet of any name—Mikulicz' disease. The upper eyelids protruded; circumscribed tumors of the size of a hen's egg appeared in the parotid and submaxillary glands; the sublingual, the accessory parotids and Nuni's glands were enlarged. The lachrymal *and salivary secretions had ceased entirely, but under long*-continued massage a little saliva could be made to flow. The subjective symptoms were not conspicuous. Metabolism appeared to be normal; there was neither spontaneous nor alimentary glycosuria. The blood is also normal, a matter of interest as well as importance, inasmuch as several of these cases terminated in leukemia. Medicinal treatment, consisting of the internal administration of potassium iodid and arsenic, proved futile. Massage is being carried out assiduously. A summary of a review of the literature on this subject was given in The Journal recently, on page 664.

Puerperal Involution of Newborn.—J. Halban of Vienna read a communication on this subject at the last German Naturforscher Congress. His researches have demonstrated that the fetal organism shares in the genital phenomena of the mother, and that puerperal involution occurs in the same organs as in the mother. The mammæ show about the eighth month the same changes as the mammæ of the mother, and the fetal uterus shows hypertrophy and hyperemia, with puerperal involution after birth. The changes in the genital organs are not pathologic. In the mother they result in the formation of the decidua, but in the fetal uterus the reaction is more in the nature of menstrual changes. The mammary glands of male children and the prostate show these same changes and involution after birth. He ascribes the processes to intoxication from the placenta, regarding eclampsia as the extreme type. The organs of the fetus in eclampsia show entirely analogous changes to those characteristic of maternal eclampsia.

Melanoderma in Tuberculous Subjects.—Eliminating all other causes for the condition, out of 60 tuberculous subjects taken at random, Laignel-Lavastine found twelve cases of marked pigmentation of the skin credited to the general tuberculous condition. He reports also in detail in his article in *Archives Gén. de Méd.*, lxxxi, No. 40, 1904, a list of thirty-one cases, in 5 of which autopsies were made, and in which lesions of the solar plexus, of the suprarenals and of the splanchnics were found. These lesions are rare in non-pigmented patients, while in those presenting melanoderma, whatever may be the cellular changes of the suprarenals, these glands are hypopigmented. The pigmentation seems to be connected with the disturbance of function rather than with a uniform lesion of the organs, some of which may be unaffected in certain cases. The mechanism of the peculiar coloration in Addison's disease *is the same; the suprarenals may be affected either directly or* through their nervous mechanism. In Addison's disease, however, the essential cellular elements are affected, while in other forms of tuberculous pigmentation this is not necessarily the case.

Salivary Calculus.—According to Perrone, in the *Arch. Gén. de Méd.*, calculus of the submaxillary and sublingual glands, while rather rare, is more frequent than is generally suspected. Infection is its sole cause. The other theories lack scientific support. Foreign bodies may act as carriers of parasites, and the diathesis affords favorable conditions for the infection. The anatomic pathologic lesions are three: dilatation of the excretory ducts, sclerosis of the intralobular connective tissue, and atrophy of the glandular parenchyma. The sclerosis is due to infection, not, as Charcot and Gombault would have it, to simple obstruction of the ducts. Errors of diagnosis should be avoided by considering the possibility of this sclerosis. The treatment of the condition is simple, usually limited to the removal of the calculus through the duct by means of a canulated sound or by simple incision of the mucous membrane, but in some cases this may fail, and extirpation of the diseased gland may be required. The operation is not dangerous or disfiguring if a correct aseptic surgical *technic is employed.*

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6 7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

South Carolina State Board of Medical Examiners, Columbia, April 24. Secretary, W. M. Lester, M.D., Columbia.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Virginia December Report.—Dr. R. S. Martin, secretary of the Medical Examining Board of Virginia, reports the written examination held at Richmond, Dec. 13-16, 1905. The number of subjects examined in was 9; percentage required to pass, 75. The total number of applicants examined was 108, of whom 35 passed and 28 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
University of Maryland.............(1902) 80,	(1904)	77
Kentucky School of Medicine....................	(1904)	75, 75
University of Virginia ....(1903) 89,	(1904)	76, 91
University of New York.........................	(1891)	75
Baltimore Medical College...........(1903) 75,	(1904)	75, 85
University of the South........................	(1903)	75, 75
Maryland Medical College............(1903) 79,	(1904)	80, 81
College of P. and S., Boston..................	*(1903)*	75
Leonard Med. College, (1901) 75, (1903) 75, 78;	(1904)	75
Medical College of Virginia.........(1903) 79,	(1904)	75, 81
College of P. and S., Baltimore................	(1903)	77
Baltimore University	(1904)	76
Medical College of Virginia	(1904)	77
Columbian University...........................	(1904)	81, 81
Youngstown University	(1904)	80
Louisville Medical College..........(1890) 75,	(1892)	75
Hospital College of Medicine, Louisville........	(1900)	75
University of Tennessee........................	(1886)	75
Medical Department, Vanderbilt University......	(1887)	75
FAILED.		
Royal University of P. and S., Rome............	(1901)	52
Kentucky School of Medicine....................	(1904)	66
University of the South........(1903) 71,	(1904)	57, 66, 70, 71
Boston University	(1904)	69
Leonard Medical College, (1902) 63, 73;	(1904)	64, 66, 68, 69, 69, 72, 73, 70.
Howard University	(1904)	70, 70
University College of Medicine........(1902) 73,	(1903)	73
Jefferson Medical College	(1888)	60
Tennessee Medical College......................	(1900)	65
Maryland Medical College, (1902) 72, (1903) 50,	(1904)	61, 73

Wisconsin January Report.—Dr. F. A. Forsbeck, secretary of the Wisconsin Board of Medical Examiners, reports the written examination held at Milwaukee, Jan. 10-12, 1905. The number of subjects examined in was 16; total number of questions asked, 120; percentage required to pass, 75. The total number of persons examined was 19, all of whom passed. *The following* colleges were represented:

College.	Year Grad.	Per Cent.
Trinity University, Canada	(1904)	80.6
University of Michigan	(1904)	87.9
Toronto University	(1894)	89.3
College of P. and S., Chicago	(1902) (1904)	81.2, 82 6, 85.1
Northwestern University	(1903) (1904)	85.2, 85.7
Hahnemann Med. Coll., Chicago	(1888)	84.2
University of Palermo, Italy	(1896)	76.6
Rush Medical College,	(1904) (1903)	82.3, 82.5, 87.6, 84 1, 87.5; 85.5.
University of Christiania, Norway	(1892)	75 3
Hamline University	(1902)	79.4

Wyoming's New Medical Law.—The Wyoming legislature has passed the medical bill which was introduced by Dr. S. W. Johnson, a member of the house of representatives. In the upper house the interests of the bill were looked after by Drs. Levers and Price, members of the senate. Much credit is due these gentlemen for their earnest efforts in procuring the passage of the bill. It provides for the creation of a board of medical examiners, to be appointed by the governor, and to consist of three regularly licensed physicians, who shall hold office for a term of four years. Applicants for licensure must be graduates from a regularly chartered college, one which is recognized by the licensing board of the state in which it is located. In addition to presenting his diploma the applicant must pass an examination, which may be in whole or in part in writing, of an elementary and practical character, on anatomy, physiology, chemistry and toxicology, pathology, physical diagnosis, gynecology, principles of surgery, obstetrics, hygiene and bacteriology, and such other branches as are necessary to complete the system of which he is a practitioner. Authority is delegated to the board to call in regularly licensed practitioners of special systems of practice to assist in the examination. An average grade of 75 per cent. in all the branches, and not less than 60 per cent. in any one branch, is required. Not more than four examinations will be held in any one year. Certificates will be issued to all those who pass the examination, and these certificates must be recorded at the office of the county clerk of the county in which the licentiate resides. The fee for the examination is $25. The matter of reciprocity is left entirely to the discretion of the board. The bill does not prohibit gratuitous service, nor does it apply to commissioned surgeons of the United States Army and Navy, to medical examiners of relief departments of railroad companies, to consultants who are regularly licensed in their own state, or to any physician or surgeon residing on the border of a neighboring state who is duly authorized under the laws of that state to practice medicine and surgery therein, and whose practice extends into the limits of Wyoming. The bill applies to apothecaries and pharmacists who prescribe for the sick. Any person is regarded as practicing medicine who in any manner holds himself out to the public as being engaged in the diagnosis and treatment of diseases or injuries or deformities of human beings; or who suggests, recommends, or prescribes any form of treatment for the intended palliation, relief or cure of any physical or mental ailment of any person with the intention of receiving therefor, either directly or indirectly, any fee, gift or compensation; or who maintains an office for the reception, examination and treatment of any person suffering from disease or injury of body or mind; or who attaches the title of M.D., surgeon, doctor, or any other abbreviation or words to his name indicating that he is engaged in the practice of medicine.

Association News.

THE PORTLAND SESSION.

Excursions To Be Arranged from Portland to the Orient and to Alaska.

The Chairman of the Committee of Arrangements for the Portland Session, July 11 to 14, desires us to announce that arrangements are under consideration with the Pacific Mail Steamship Company for special rates to Yokohama and return, leaving immediately after the adjournment of the session. The regular round-trip rate from San Francisco is $337.50, but this rate will undoubtedly be cut considerably, if a sufficient number desire to go. Arrangements are also being perfected for a special trip to Alaskan points, and those who desire to take either of these trips should write to Dr. Kenneth A. J. Mackenzie, Portland, Ore.

Hotel Accommodations Should Be Reserved.

The hotel committee is very anxious that as many as possible write and engage rooms as soon as they have decided to go to Portland. There will be ample accommodations for everyone, but the earlier the rooms are engaged the more satisfactory will it be to all concerned. For all information address Dr. K. A. J. Mackenzie, Chairman of the Committee of Arrangements, Portland, Ore.

The Yellowstone Park-Portland Special.

The schedule of the trains for Portland by way of Yellowstone Park is as follows, slightly corrected from the description in THE JOURNAL last week: The train leaving Chicago on the morning of June 30 will reach Portland at 6 a. m., Monday, July 10. The train leaving Chicago on the morning of July 1 will reach Portland at 11:30 a. m., Monday, July 10. This will give a full day (Monday) to those leaving here June 30, and will give those leaving here on the morning of July 1, ample time for lunch and preliminary arrangements and for any Monday afternoon meeting on hand.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending Feb. 25, 1905:

Stone, John H., asst.-surgeon, granted four months' leave of absence about April 1, with permission to go beyond the sea.

Shepard, John L., asst.-surgeon, left from detached duty at Washington, D. C., on fifteen days' leave of absence.

By Paragraph 20, S. O. 41, War Department, the following named asst.-surgeons are relieved from duty in the Philippine Division, to take effect on the dates set opposite their respective names, or as soon thereafter as practicable, and will then proceed by the first available transport to San Francisco, and on arrival report by telegraph to the military secretary of the Army for further orders: Capt. Wm. H. Wilson, May 12, 1905; Capt. Wm. W. Quinton, May 26, 1905; First Lieutenants E. R. Whitmore, R. U. Patterson, R. P. O'Connor, C. E. Koerper, P. S. Halloran, P. L. Boyer, Roger Brooke, Jr., May 12, 1905; Geo. P. Heard, Jas. F. Hall, Kent Nelson, Jas. M. Phalen, Chas. A. Ragan, Wm. P. Woodall, E. L. Ruffner, May 26, 1905.

Girard, A. C., asst.-surgeon general, leave of absence extended thirty days.

Morse, A. W., asst.-surgeon, relieved from duty at Vancouver Barracks, Wash., and to accompany Nineteenth Infantry to Manila, P. I., where on arrival he will report for duty in Philippine Division.

Birmingham, H. P., surgeon, left C. S. O., Department of Texas, on tour of inspection to Jackson Barracks and Fort St. Philip, La.

De Kraft, S. Chase, contract surgeon, left World's Fair Grounds, St. Louis, February 15, and arrived at Fort Thomas, Ky., with battalion of Philippine Scouts, February 16.

Wing, Franklin F., dental surgeon, granted leave of absence for fourteen days.

Lauderdale, Clarence E., dental surgeon, ordered from Fort Ringgold, Texas, to Fort Bliss, Texas.

Rietz, Hugo C., dental surgeon, left Fort Sheridan, Ill., February 17 for duty at Fort Thomas, Ky.

Kellogg, Preston S., contract surgeon, relieved from duty in the Department of the Missouri, and ordered to accompany the Third Squadron, Eighth Cavalry, from Fort Riley, Kan., to the Philippine Islands.

Marvin, Marion F., contract surgeon, relieved from further duty in the Philippine Division and ordered at the expiration of present leave of absence to Fort Robinson, Neb., for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Feb. 25, 1905:

Schwerin, L. H., A. A. surgeon, detached from the *Abarenda* and ordered home to wait orders.

Payne, J. H., P. A. surgeon, ordered to the *Pennsylvania.*

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ended Feb. 22, 1905:

Williams, L. L., asst.-surgeon general, granted leave of absence for eight days from February 14.

Stimpson, W. G., P. A. surgeon, detailed as member of Revenue cutter Service retiring board at San Francisco.

Blue, R., P. A. surgeon, detailed as member of Revenue-cutter Service retiring board at San Francisco.

Oakley, J. H., P. A. surgeon, to proceed to Northport, Wash., for special temporary duty.

Foster, S. B., A. A. surgeon, Department letter of Jan. 23, 1905, granting leave of absence for twelve days, amended to read ten days from January 24.

BOARD CONVENED.

Board convened to meet at San Francisco Feb. 25, 1905, for the physical examination of officers of the Revenue-cutter Service. Detail for the board: P. A. Surgeon W. G. Stimpson, chairman; P. A. Surgeon J. M. Holt, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the period from Feb. 18 to Feb. 25, 1905:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Feb. 11-18, 4 cases.

Illinois: Chicago, Feb. 11-18, 15 cases, 4 deaths; Galesburg, Feb. 13-20, 1 case.

Louisiana: New Orleans, Feb. 11-18, 6 cases, 2 imported.

Massachusetts: Boston, Feb. 11-18, 1 case; Lawrence, Feb. 5-18, 6 cases.

Michigan: Detroit, Feb. 11-18, 5 cases; at 66 localities, Jan. 28-Feb. 4, present.

Missouri: St. Louis, Feb. 11-18, 28 cases, 6 deaths.

Nebraska: Omaha, Feb. 11-18, 13 cases.

New York: New York City, Feb. 11-18, 1 case, 1 death.

Ohio: Toledo, Feb. 4-18, 12 cases.

Pennsylvania: Steelton, Feb. 11-18, 1 case.

South Carolina: Feb. 11-18, Camden, 1 case; Charleston, 2 cases; Greenville, Feb. 4-11, 5 cases, 2 deaths.

Tennessee: Nashville, Feb. 11-18, 7 cases.

Wisconsin: Milwaukee, Jan. 21-Feb. 11, 24 cases.

SMALLPOX—FOREIGN.

Brazil: Bahia, Dec. 31-Jan. 21, 2 deaths; Para, Jan. 1-31, 66 deaths; Pernambuco, Jan. 1-15, 131 deaths; Rio de Janeiro, Jan. 8-29, 123 cases, 54 deaths.

France: Paris, Jan. 28-Feb. 4, 12 cases.

Great Britain: Bradford, Dec. 26-Jan. 9, 12 cases; Leeds, Jan. 21-28, 7 cases; Jan. 28-Feb. 4, London, 1 case; Manchester, 2 cases; Newcastle-on-Tyne, 5 cases, 1 death; South Shields, 2 cases, 1 death.

India: Bombay, Jan. 17-24, 94 deaths; Calcutta, Jan. 14-21, 2 deaths; Karachi, Jan. 15-22, 1 case; Madras, Jan. 14-20, 2 cases.

Italy: Lecce Province, Jan. 26-Feb. 2, 24 cases.

Mexico: City of Mexico, Jan. 14-28, 3 cases, 3 deaths.

Norway: Christiania, Jan. 14-21, 1 case, 1 death.

Russia: Moscow, Dec. 31-Jan. 28, 26 cases, 8 deaths; Odessa, Jan. 14-Feb. 4, 4 cases, 2 deaths; St. Petersburg, Jan. 14-28, 4 cases, 2 deaths; Warsaw, Dec. 10-17, 2 deaths.

Spain: Barcelona, Jan. 1-28, 18 cases.

Turkey: Constantinople, Jan. 22-29, 9 deaths.

West Indies: Grenada, Jan. 11-28, 7 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 8-29, 16 cases, 3 deaths.

Mexico: Merida, Feb. 5-11, 1 case.

Panama: Panama, Jan. 1-Feb. 11, 19 cases, 6 deaths, 6 cases, 2 deaths from U. S. S. *Boston*.

CHOLERA.

India: Calcutta, Jan. 14-21, 169 deaths.

Russia: Astrachan, Dec. 27-Jan. 8, 1 case; Dec. 21-Jan. 1, Government of Baku, 77 deaths; Government of Erivan, 38 cases, 33 deaths; Government of Saratow, Dec. 27-Jan. 3, 15 cases, 10 deaths; Trans-Caspian Province, Dec. 27-31, 7 cases, 3 deaths.

Turkey in Asia: Van, Jan. 1-7, 77 cases, 46 deaths.

PLAGUE.

Africa: Dec. 24-Jan. 7, East London, 8 cases, 5 deaths; Port Elizabeth, 1 case, 1 death.

Arabia: Aden, Jan. 14-21, 110 cases, 83 deaths.

Australia: Brisbane, Jan. 2, 1 death; Ulmarra, Jan. 10, 1 case.

Brazil: Bahia, Dec. 31-Jan. 7, 2 deaths; Para, Feb. 1, present; Rio de Janeiro, Jan. 8-29, 41 cases, 15 deaths.

Egypt: Jan. 14-21, Suez, 4 cases, 3 deaths; Tukh, 1 case, 1 death.

India: General, Dec. 31-Jan. 14, 58,376 cases, 50,604 deaths; Bombay, Jan. 19-24, 301 deaths; Calcutta, Jan. 14-21, 64 deaths; Karachi, Jan. 15-22, 46 cases, 46 deaths; Madras, vicinity of, Jan. 6, outbreak reported.

Japan: Hiogo, Dec. 14, 1 death.

Russia: Ural Territory, Jan. 3-9, 8 cases, 15 deaths.

Siam: Bangkok, Dec. 15-22, 9 deaths.

Straits Settlements: Singapore, Dec. 30, 3 cases.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.

CHICAGO.

(Continued from page 653.)

It is a little strange, in view of the activity in America of research dealing with the application of the methods of physical chemistry to biology, that Europeans are so little informed about what is going on here. Since the first experiments by Kahlenberg and True there has been a steady stream of physical-chemical research in biology in this country. Let anyone unfamiliar with what has been done read the address of A. P. Mathews, one of the best workers in this field, on "The Relation of Inorganic Salts to Protoplasmic Activities," in the *Yale Medical Journal*, 1903; he will speedily be convinced of the fascination of the subject, of the great progress that has been made, and of the important participation of American intellect in this domain. A high tribute to American chemicobiologic research is to be recognized in the visit of Ostwald to the University of California, on the occasion of the opening of the new physiologic laboratory there. His address, "Biology and Chemistry," delivered on that occasion, is full of stimulus for further work.

KK. WILHELMINER SPITAL.

The new Kk. Wilhelminer Spital for sick children in Vienna is situated far from the center of the city, out in the *xvi Bezirk*. It is especially interesting to visit, as it exemplifies the isolated pavilion system carried to an extreme degree. The part of the hospital devoted to infectious diseases accommodates about 300 patients and for these alone there are no less than 23 separate buildings! In the first place, there is a special house for the reception of patients; it has its own physician and several different examining rooms corresponding to the various provisional diagnoses made outside. If a patient is supposed to have scarlet fever he is sent to the scarlet fever room for examination; if measles be suspected, to the measles room, and so on. Each room is thoroughly disinfected after use with lysol. The reception house has an operating room for tracheotomies. intubations, etc., when they must be done *instanter*. If a positive diagnosis can be made at once, the patient is transferred to the particular pavilion set aside for the cases of that particular disease. If the diagnosis is doubtful the patient is placed in an isolated expectant ward until the nature of the case is cleared up.

The infectious pavilions are divided into three principal groups: 1, diphtheria group; 2, scarlet fever group, and 3, measles and whooping cough group. In each group there is a separate building for the pure disease and accessory separate buildings for the disease as variously complicated. Thus in the diphtheria group there is one pavilion for pure, uncomplicated diphtheria, a second for mixed infection of diphtheria and measles, a third for another kind of mixed infection, and so on. Each pavilion has its main ward, its *Ordinationszimmer* in which operations are done, dressings are made, injections are given, etc., its laboratory, its day room for convalescents, its isolation room, its nurses' room, its closets, its bathroom, its kitchen, etc. Outside balconies are common. The children are excellently cared for, not only medically but from the standpoint of general hygiene. The situation of the hospital in the country on the side of a hill is most salubrious; the pavilions are widely separated from one another. The physician-in-chief to the infectious wards, a very earnest man, takes the deepest interest in the welfare of the patients; the immense organization necessary seems to run smoothly. The serum treatment of diphtheria is instituted at the earliest possible moment after a probable diagnosis has been made, of course without waiting for bacteriologic control. In some cases as much as 15,000 units of antitoxin are given.

One naturally asks the question, Is such an elaborate isolation system, such a maximal development of the pavilion system necessary or desirable? and I asked it of the medical chief of the infectious wards as we wandered through the labyrinth of separate pavilions. He frankly stated it as his opinion and as the result of experience there gained that so extreme a development of the pavilion system as the Wilhelminer Spital presents is not necessary. There are many objections to it; the amount of land required is very great, the initial expense for buildings and manifolding of equipment is enormous, the professional *personnel*, including doctors and nurses, must be very large if the work is to be efficiently conducted, the *Dienerschaft* is unnecessarily increased, in bad weather the hardship on physicians and nurses may be considerable, and where the difficulties are made great for physician and nurse the patients are only too likely to suffer from neglect. If unlimited amounts of money are available and it is lavishly enough spent to adequately supply the needs of the organization, then the luxury of the small pavilion system may be indulged; but buildings of two or more stories, with separate entrances to different parts, answer the purpose just as well, and the initial and current expenses can be thereby greatly curtailed. In the new Pasteur Hospital for Infectious Diseases, which I visited later in Paris, the problem has been more satisfactorily solved; how that hospital is arranged will be described further on in these notes.

STUDY OF ANATOMY OF THE NERVOUS SYSTEM.

Nervous anatomy, under Professor Obersteiner's leadership, is still making rapid progress in Vienna. Obersteiner's many American friends and former students will be interested to learn that the old laboratory in which, in spite of its narrow bounds and dilapidated character, a vast amount of original work has been done, is finally to be deserted; the work is being transferred to very good quarters in the old physiologic building, made vacant by Exner's occupation of the new physiologic laboratory just completed. Dr. Schacherl. the first assistant in the neurologic laboratory, showed me the vast collections of serial sections which have gradually accumulated. The material already gotten together there will form an excellent beginning for one of the central institutes for the investigation of the brain which scientists are now projecting. Among its other treasures, the institute possesses rare and valuable sets of brain sections from a series of Australian animals. Zuckerkandl's studies in the comparative anatomy of the brain were made largely in Obersteiner's laboratory. Obersteiner has proved himself to be a most stimulating, practical teacher and the Americans who have gone to him have profited much. He teaches his men how to observe, how to describe and how to use literature, and whenever possible leads his pupils into original work. One of his school, Dr. Marburg, has recently prepared an excellent atlas of the brain; its illustrations have been carefully made and the book may be warmly recommended.

PHYSIOLOGIC CHEMISTRY AND PHARMACOLOGY.

Physiologic chemistry and pharmacology, at any rate as officially represented in Vienna, appear to be far behind the times. Americans desiring to work in Europe in these important branches should at present look elsewhere than to the Austrian capital for facilities and leadership.[1]

Buda-Pesth.

"Extra Hungariam non est vita, si est vita, non estita!" So runs the Hungarian motto. Buda-Pesth is a joyous city, modern and progressive. The shops look bright and prosperous; were it not for the unintelligible words on the signboards, the names hind-end foremost, and the symbolical paintings on the portals advertising the wares on sale within, a business street in Buda-Pesth might be mistaken for one in a city in the New World.

The Royal Hungarian University (*Budapesti kiralyi magyar Tudonany-Egyetem*) has all four faculties and over 6,000 students. Its income for 1902 was $551,410

HOSPITALS AND MEDICAL COLLEGES.

The hospitals and medical schools are situated in or near the *Üllöi-ut.*. The professor of practical medicine and director of the medical clinic is F. Korányi, now an elderly man of 75 years, a member of the government and a distinguished speaker in the house of parliament. His work is cared for in his absence by Dr. H. Benedict, one of the best young medical men in Buda-Pesth. The clinic is rich in material and I saw there a number of cases of unusual interest, including osteomalacia, aneurism of the hypogastric artery with lesion of the cauda equina, pulsating pleurisy with exudate rich in cholesterin and a series of interesting neurologic cases. The younger Korányi, son of the director of the clinic well known in connection with his studies in cryoscopy, did his work in the small clinical laboratory here. He now has his own wards at the St. Stefani Hospital in the suburbs of the city.

The neurologic clinic of the university, situated in the *Baross utcza* is in charge of one of the most interesting and original men in Buda-Pesth, Prof. Ernö Jendrassik. The building is inadequate and unworthy of the good work done in the clinic. At the time of my visit some experiments were being made with the "bromid diet," in which all the ordinary salt of the food is replaced by sodium bromid. In combating the lightning pains of tabes emphasis is laid in Buda-Pesth on the value of combining half a milligram of scopolamin with each dose of morphin.

Anatomy is well taught under Professor Thanhoffer and von Lenhossék. The latter has organized the teaching in his department in an admirable manner. The laboratory work is thorough, but von Lenhossék also lays great stress on the lectures, even in gross anatomy, holding that only through the lecture can the connection of the facts learned in the laboratory and their explanation be satisfactorily grasped by the student; a text-book can not entirely take the place of the *Macht des gesprochenen Wortes*. Von Lenhossék has worked out an ingenious method for helping an instructor who can not draw well to place accurate illustrations on the board; the method is published in the *Anatomischer Anzeiger*. He lays stress on the advantages of a white board (ground glass with white drawing paper behind it) over a blackboard for class work. In his chart making he uses the convenient and inexpensive stencil apparatus made by Pospisil of Stefanau.

Von Lenhossék is an ardent supporter of the neuron doctrine. He is now hard at work at the neurofibrils and rejoices at the simplicity of the new method of Ramón y Cajal over the methods of Apathy and Bethe. He finds Bielschowsky's method also good, though more complicated than Ramón's. Von Lenhossék asserts that the neurofibrils never pass from one neuron into another and that they are never found free outside the neurons. He contends that he has absolutely disproved Apathy's theory that the neurofibrils grow from without into the nerve cells. Nissl's "gray substance" is, in his opinion, a pure myth.

Bókay is the pharmacologist at Buda-Pesth; H. Pertik, the professor of histology, is an authority on tuberculosis; his collective review on the recent literature of the subject in Lubarsch-Ostertag's yearbook makes very interesting reading.

Prague.

The quarreling between the students in the two Karl-Ferdinand universities—German and Bohemian—in Prague still pursues its intermittent course. The feeling between German and Czech runs very high in the city; even the stranger who speaks German but not Bohemian may find himself in embarrassing circumstances there. Prof. Karl Rabl, head of the department of anatomy and rector of the university at the time of our visit, showed us in his institute a great heap of stones which Czechisch students had thrown through the windows of his laboratory. German life and property are continually threatened. One German professor said to me: "We live as in a prison; life is made a veritable hell for us here." One was reminded of the isolation of the ghetto. Rabl has just been called to Leipzig to succeed the late Professor His; I have no doubt that other professors in the German University of Prague would welcome warmly a suitable call elsewhere.

Prague, aside from its general charm, is, medically, a city of unusual interest. Despite the hardships of the life, many distinguished German-speaking men are active there. Pribram has the first medical clinic and v. Jaksch the second; Chiari is the pathologic anatomist and Pick is the psychiatrist; Hueppe has hygiene, Pohl pharmacology, Hering, Jr., general and experimental pathology, and v. Zeynek medical chemistry. In the Bohemian university there are also excellent men at work; Spina has general and experimental pathology, Horbaczewski only in those cases where the pain is due to congestion of the iris.

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[1] Since the above was written Professor Hans Meyer, the distinguished pharmacologist of Marburg, has been called to a chair in Vienna. Under his leadership pharmacology is sure to flourish in the Austrian capital.

In cases where it is desired to paralyze the accommodation the action of the drug is noticed to be slower than on the iris, requiring two hours to produce complete paralysis of the ciliary muscle. This effect lasts from 10 to 12 days. In this connection atropin is of value in the estimation of errors of refraction, in determining hypermetropia and astigmatism, and in observing diseases of the choroid and of the retina. Atropin is of value in correcting errors of refraction in patients under 40 years of age, unless pregnancy, lactation or glaucoma are present, and in spasms of accommodation with resulting apparent myopia. Atropin is indicated in the treatment of convergent strabismus, due to an excessive hypermetropia in its early stages, and by paralyzing the accommodation prevents undue convergence.

In the diagnosis of posterior synechiæ atropin is of great value.

In keratitis, when complicated by iritis or by hyperemia of the iris atropin is indicated, as it exerts an antiphlogistic effect by contracting the blood vessels and by relieving congestion. This overbalances its increased tendency to photophobia, which can be diminished by wearing smoked glasses. In diseases of the cornea the author emphasizes the value of atropin in almost every type of inflammation, whether slight or severe, whether parenchymatous or interstitial.

In ulcers of the cornea, its value depends on its ability to keep the iris away from the cornea.

In the different forms of iritis, whether syphilitic, rheumatic or traumatic, its value has been demonstrated. In diseases of the sclera, including wounds and recent injuries, the conditions are always improved by the use of atropin.

CONTRAINDICATIONS FOR THE USE OF ATROPIN.

Atropin is contraindicated in glaucoma, and in people over forty. In cyclitis it increases the pain. In ulcers of the cornea, with impending perforation, it must be used with care, and in radial iridodialysis it is contraindicated. In the treatment of children, it must be employed with care, as it may cause toxic symptoms, and, as with many other preparations, idiosyncrasies must be looked for. In its local use toxic symptoms arise through its excretion through the lachrymal duct into the nose. The preparation must be pure; it should be neutral in reaction, and when used locally the lachrymal duct should be compressed or the lid everted.

Night Sweats in Phthisis.

The experience of J. Sorgo, chief of the Alland tuberculosis sanatorium in Germany, has convinced him that night sweats are due only partially to the tubercle toxins. The principal factor is the unhygienic conditions which the subject imposes on himself from the fear of "catching cold." Almost invariably the night sweats are banished in the sanatorium by the institution of proper hygienic measures. His article on the etiology and prophylaxis of night sweats in phthisis appears in the *Wiener med. Woch.*, Nos. 50-52, 1904.

Salicylates in Gallstone Affections.

B. Stiller of Ofen-Pest confirms the recent assertions of various authors in regard to the efficiency of sodium salicylate in the treatment of biliary lithiasis. (The Journal, Feb. 11, 1904, p. 510, No. 77.) He prescribes .5 gm. about four times a day for several weeks, after subsidence of the acute phase. He also uses warm linseed poultices and rest in bed. This treatment is an effective substitute for a course at Carlsbad, or may supplement such a course, and it will be found useful in cases with violent onset in which a Carlsbad course is not indicated until later. The best results seem to be obtained in the so-called "ineffective colics" in which the stones do not seem to get beyond the cystic duct, and in which icterus is transient or is absent altogether. *Perihepatitis and cholecystitis* without colics are also favorably affected by this treatment. His communication is cited in the *Münch. med. Woch.*, lii, No. 5.

Influenza.

The treatment of influenza, according to *Med. Council*, consists at first of rest in bed and a saline cathartic (sodium sulphate). After the cathartic has taken effect, hot drinks are given to the patient and heat is applied to the feet in order to produce free diaphoresis. This will rid the system of the accumulated poisons and will dissipate the acute symptoms. Depressants must be avoided. Sulphate of sodium has proved to be a very valuable drug in the treatment of this disease. A laxative dose is given every morning on awakening, and small doses —5 grains—are given every hour throughout the day. Camphor—in large doses of the tincture repeated hourly—will quickly control the disease in some persons. Ammonium salts—a combination of the chlorid and bromid—are frequently very effective. Quinin in the beginning is the best tonic drug. If there is fever and rapid pulse, acetanilid can be given, with camphor monobromate. Strychnin is the best tonic after the acute symptoms have subsided. For the cough codein may be given if necessary. Dover's powder is excellent as a cough sedative and as a diaphoretic. During convalescence strychnin and some form of wine will prove useful unless there is a poor appetite, in which case tincture of nux vomica with the compound tinctures of gentian and cinchona will give excellent results. Digestives may be necessary. Complications must be watched for, and when they occur special treatment is indicated.

Medicolegal.

Pay of Health Officer—Duties of Board.—The Court of Appeals of Kentucky says, in the case of Taylor vs. Adair County, brought to recover for services rendered as health officer, that the answer denied, on knowledge or information, that the plaintiff had been appointed health officer, or had been appointed a member of the board of health. This was a sufficient denial, because these boards are not required by statute to keep records of their proceedings. Therefore, these acts, though official, are not presumed to be known to every one. Another defense was that prior to the time when the plaintiff claimed to have been appointed health officer, and to have rendered the services sued for, the fiscal court of Adair County had, by an order of court, fixed the salary of the health officer at $40 per annum, and that the plaintiff accepted the appointment and rendered the services with the knowledge of that fact, and had for a time acquiesced in it by accepting payments based on that allowance. The county's position was that, as the salary or compensation of the plaintiff was fixed before his term of office began, it could not be either increased nor diminished during his term, under the state constitution. The statute reads: "Physicians appointed as health officers for cities, towns and counties shall receive reasonable compensation for their services, to be allowed by the councils, trustees, or county (fiscal) courts of the cities, towns or counties, and to be paid as other city, town or county officers are paid, and such officers may be removed at any time by the local boards appointing them. . . ." County judges and treasurers are to be paid annual salaries, to be fixed at reasonable amounts by the fiscal courts. The fees allowed to certain officers as compensation in lieu of salaries are subject to the same constitutional limitation. But here, the court says, it is not known what services may be rendered. They are of a nature that may vary considerably in value and extent in different years. Some years no services may be rendered. Again, an epidemic of smallpox or yellow fever might take all the health officer's time for a great part of a year. For that reason it seems that the legislature has not seen proper to require a salary to be fixed and paid to such officer, but that for such services as he may render he shall be paid reasonable compensation. That can not be determined in advance, if for no other reason, because their nature and extent are impossible to be known before the emergency happens calling for them. If it is intended to fix in advance the pay for such services, a reasonable schedule of rates might be adopted. A salary of $40, which should cover all possible services that may be required of the health officer in a year, while in some instances it might be enough, or even too much, yet in others it would be manifestly and grossly inadequate. The result must be, if it be allowed, to deter qualified physicians from accepting such appointments. In this way fiscal courts might overthrow the legislative provision in its practical application, by which it was intended that the treatment of these deadly contagions might be controlled or stamped out by the employment of skilled and competent physicians. The action of the fiscal court in attempting to so fix a salary in advance was not binding, under the circumstances shown, on the health officer. For it was his duty to do what the law required of him, under direction of the board of health, in stamping out and preventing the spread of contagious diseases; and he has the right to claim adequate pay for his services, which the fiscal court must allow, if the services were in fact rendered as required by law. However, the plaintiff's petition alleged that the county board of health, when appointing him health officer, gave him general authority and direction to look after epidemics of contagious and infectious diseases appearing in the county, and to make all necessary inspections and visitations called for by the situations that might arise. But the court is of the opinion that the county board of health had not the power to delegate its duties in such matters, and that it could not, by an attempt to do so, create any right in the health officer that did not already exist. It says that the powers given to these boards are extraordinary, seemingly justified by the most serious exigency affecting the public health. More than one person is required by statute to be appointed on the board. The legislature was evidently unwilling to leave to one person the determination of such important and drastic measures as are given to the county boards. In the judgment and fidelity of a greater number acting together is the greatest security against abuse of extraordinary power. It is to the county board of health, not to the health officer, their creature and executive, that is committed the duty of examining into those nuisances and conditions of filth and infection that tend to spread the contagious diseases, to establish quarantines, and to bring the population of an infected or suspected community into prescribed treatment and disinfection. This power is given by the statute to the board, and it must act as a board on each case or epidemic as it arises, determining the necessities of each situation from the facts then existing.

Privileged Questions as to Length of Pregnancy.—The Third Appellate Division of the Supreme Court of New York says that the case of Van Bergen vs. Catholic Relief and Beneficiary Association was brought by the plaintiff on a beneficiary certificate issued by the defendant to his wife, dated August 6. She died October 26, following. The defense was that in answer to the question put to her by the defendan'ts medical examiner, "Are you pregnant?" she falsely answered "No," by reason whereof the certificate, under the terms of her application therefor, was void. It was shown that on the 13th of October she gave birth to a stillborn child. The physician who attended her at that time was sworn for the defendant. He was asked: "How many days or months of gestation had elapsed between the conception of that child and the time of its birth?" This question was objected to as incompetent, under section 834 of the Code of Civil Procedure, and the objection was *sustained*. The court says that the purpose of the question clearly was not to ascertain the age of the child in utero, but was to show the length of time the mother had been pregnant, and to show that she was in that condition, and knew it, when she made her application. The burden was on the plaintiff to show, if it did *not* otherwise appear, that the information sought by the question was within the statutory exclusion. This burden was satisfied when the plaintiff procured from the witness the statement that whatever he learned he learned in his professional capacity as a physician, and that such information was necessary to enable him to treat the case. It was not to be expected that the trial court, who is not to be presumed to be an expert on matters of this kind, should hold, in the face of this evidence from a physician, that the information was not necessary to enable him to prescribe for his patient. The only attempt by the defendant to rebut this testimony was in a single question, as follows: "The mere fact of the birth of the child didn't enable you to diagnose the previous condition of the woman to enable you to treat her. You diagnosed that without seeing the child, didn't you?" The witness answered "Yes." Whether he meant by the affirmative answer to this compound question to testify that the fact of the birth of the child enabled him to diagnose the previous condition of the mother, to enable him to treat her, or that he could make that diagnosis without seeing the child, the court says, was not clear. It may be presumed, however, that his answer was intended to be the last and not the first portion of the question, and yet the position of the defendant was not helped. The age of the child, except as that revealed the condition of the mother, was wholly immaterial; and the physician's testimony being privileged, under the Code, with respect to a direct question asking for information concerning the condition of his patient which he acquired while treating her, and which was necessary to enable him to do so, the privilege must also be held to extend to all such information sought for by indirect questions or methods, else the purpose of law might be entirely circumvented. More than this, the question objected to was broad enough to permit the witness to give in answer thereto any information which the mother had given to him, as well as any which he might have obtained solely from an inspection of the child. Wherefore the court thinks the ruling excepted to was correct.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 18.

1 *History and Development of Surgery During the Past Century. F. S. Dennis, New York City.
2 *Kidney Diseases Requiring Surgical Interference. J. M. Baldy, Philadelphia.
3 Extraction of Cataract: Choice of Operation Based on Intra-ocular Conditions. S. D. Risley, Philadelphia.
4 *Efficiency of Copper Foil in Destroying Typhoid and Colon Bacilli in Water. H. Kraemer, Philadelphia.
5 *Classification of Gastric Ulcers. A. L. Benedict, Buffalo.
6 Treatment of Strangulated Hernia in the Very Old. D. Peyton, Jeffersonville, Ind.
7 Some Medical and Sanitary Experience in a Portion of the Philippines. B. G. Edger, Jr., Fort Brown, Texas.

1. Progress of Surgery.—Dennis enumerates the following achievements of surgery during the past century:

The annihilation of pain during surgical operation.
The elimination of sepsis after operations and injuries.
The eradication of physical suffering
The restoration of sight to the blind.
The recovery of hearing to the deaf.
The return of lost functions to organs and glands.
The aseptic repair of injured parts.
The relief of the crippled and lame.
The restitution of speech and consciousness.
The return of activity to paralyzed members.
The removal of malignant disease.
The restoration of reason to the insane.
The correction of bodily deformities.
The alleviation of pain in disease.
The reaction from shock and collapse.
The cure of lockjaw and other infective processes.
The intervention of relief in intestinal perforation.
The extirpation of tumors, from glands and cavities.
The cure of diseases and injuries of internal organs.
The resection of diseased viscera.
The excision of joints and necrosed bone.
The amputation of diseased members.
The cure of aneurism.
The removal of cerebral and spinal neoplasms.
The reduction of mortality in all surgical diseases.
The entire removal of mortality in some surgical diseases.
The restoration of health and reason.
The salvation of human life.

2. Kidney Diseases Requiring Surgical Interference.—Baldy says that in many of the kidney affections for which we operate, the most prominent symptoms in the case often are not

directly referable to that organ. Two of five recent cases on which he operated were floating kidneys with all the classic symptoms, gastrointestinal and nervous disturbance, but with local symptoms in abeyance and only elicited on palpation of the organ. In one case the kidney was so movable that the patient herself could at times grasp it in her hand through the abdominal walls. One case of cystic kidney with a well-defined adenoma on its surface was taken for ovarian disease; one case of calculus of the kidney and ureter was mistaken for and operated on for an ovarian and uterine growth and a tuberculous kidney and ureter were mistaken for a pyosalpinx.

4. **Copper Foil as a Germicide.**—Kraemer, as the result of experiments, finds that copper treated water is more natural and more healthful, inasmuch as the various inorganic constituents, particularly the salts of calcium and magnesium, are in a more soluble and assimilable condition, and are less concentrated than water not so treated, and at the same time the natural gases of the water are retained. The intestinal bacteria, like colon and typhoid, are completely destroyed by placing clean copper foil in the water containing them. The effects of colloidal copper and copper sulphate in the purification of drinking water are in a quantitative sense much like those of filtration, only the organisms are completely destroyed. Pending the introduction of the copper treatment of water on a large scale, Kraemer suggests that the householder may avail himself of a method for the purification of drinking water by the use of strips of copper foil about three and a half inches square to each quart of water, this being allowed to stand over night or from six to eight hours, at the ordinary temperature, and then the water drawn off or the copper foil removed. The detail of the experiments conducted is given in full.

5. **Classification of Gastric Ulcers.**—Benedict offers the following classification of gastric ulcers, using the term in its broadest sense, and including certain causes of hemorrhage by diapedesis and punctate or linear traumatisms, which should theoretically be excluded but which are often unavoidably confused in the diagnosis and which tend to become true ulcers on account of secondary destruction of tissue by peptic digestion or bacterial lysis: 1. Peptic ulcer, including the majority of cases of gastric ulcer with copious hemorrhage. This occurs mainly in young persons and by preference in women, in the third and early in the fourth decennium, who are anemic, neurotic and overworked. 2. Erosions by chemic and thermic caustics, as in corrosive poisoning and the ingestion of liquids, at or above 60 C. 3. Ulcers due to organic vascular lesions, such as embolism, thrombosis or obliterative inflammation of a vessel. 4. Catarrhal ulcers which are, with doubtful propriety, separated from the last category, as they occur in chronically inflamed and degenerated stomachs which present minor degrees of vascular disease. The ulcers usually occur in persons rather advanced in years, and are quite analogous to so-called eczematous ulcers of the skin. They are due to all sorts of chemic and thermic irritants. 5. Varicose ulceration, analogous to the external condition of the same name, is usually due to portal obstruction, and, especially, to that dependent on hepatic sclerosis. 6. Toxemic diapedesis, with a tendency to actual rhexis, occurring in scurvy, purpuras, jaundice, typhoid and various infections. 7. Vicarious menstruation. 8. Gangrenous ulceration. 9. Phlegmonous ulceration of the stomach. 10. Specific ulcers—neoplastic, granulomatous and non-granulomatous infections, syphilis, tuberculosis, actinomycosis, dysentery, etc. 11. Traumatic ulcerations due to external crushing injuries, internal lesions and animal parasites.

Medical Record, New York.

February 18.

8 *Report of 84 Operations on the Kidney and Ureter. G. E. Brewer, New York City.
9 Standardized Gruels; Percentage Principle to Gruel Feeding. [illegible] New York City.
10 [illegible] of the Intestine Without Injury to the Abdominal Wall. C. P. Flint, New York City.
11 *Cold Fresh-air Treatment of Pneumonia in Infants and Children. W. P. Northrup, New York City.
12 Preventive Medicine; a Study in Education. L. T. Royster, Norfolk, Va.

8. **Operations on the Kidney and Ureter.**—Brewer presents a report on the results, pathologic conditions and features of unusual interest in 84 cases operated on in the past ten years for disease of the kidney and ureter. There were 27 nephrotomies, with 8 deaths; 27 nephrectomies, with 1 death; 9 nephrorrhaphies, with no mortality; 10 decapsulations on 5 patients, with 2 deaths; 5 operations on the pelvic portion of the ureter, with no death, and 6 emergency operations on traumatic cases, with 1 death. Of the 27 nephrotomies the following pathologic conditions were found at operation: Pyonephrosis in 3 cases; pyelonephritis in 1 case; tuberculosis in 2 cases; intermittent hydronephrosis in 1 case; multiple septic infarcts in 4 cases; calculus in 11 cases, while in 5 cases of exploratory nephrotomy no lesion was found. Of the 27 nephrectomies there were 2 cases of primary carcinoma, 2 cases of hydronephrosis, 2 cases of early tuberculosis, 7 cases of pyonephrosis, 6 cases of stone, 2 cases of ureterovaginal fistula following hysterectomy, 1 case of septic pyelonephritis, 1 case of general infection following traumatic rupture, 1 case of early rupture, 1 case of severe hemorrhage following exploratory nephrotomy, and 2 cases of multiple septic infarcts from blood infection. In nearly every case subjected to nephrotomy or nephrectomy the possibility of calculus as a causative factor was considered. In 36 cases the history pointed strongly to the presence of calculus either in the kidney or in the ureter. In 21 of them only did subsequent operation reveal a stone; in the remaining 15, 9 showed other lesions which clearly were the causative factors in the production of the symptoms, while in 6 no lesions could be found. During the first six or seven years covered by Brewer's report the number of errors in the diagnosis of this class of cases was relatively greater than during the last two years, in which the modern methods of examination, urinary analysis, cystoscopy, urethral catheterization and the *x*-ray were employed with increasing frequency. Of the 21 cases in which stone was found 13 had severe paroxysmal pains or typical renal colic, 4 had mild paroxysmal pain, 1 had severe constant pain, and 2 had only mild constant pain. Of the 15 cases in which no stone was found, 5 had severe paroxysmal pain, 1 mild paroxysmal pain, 5 severe constant pains, 1 mild constant pain, while in 3 the history was defective. Of the 5 cases in which there was typical renal colic, in 1 there was an intermittent hydronephrosis from movable kidney, in 1 a chronic interstitial nephritis, in 1 an acute blood infection with multiple abscesses, while 2 presented no discoverable lesions of the kidney or ureter. Of the 21 cases in which stone was found there was vomiting in 11, in 9 there was no vomiting and in 1 the history was defective. Of the 15 cases in which no stone was found vomiting occurred in 7, was absent in 4, and was unrecorded in 4 cases. Frequent or painful micturition, occasionally associated with severe tenesmus, was present in 12 of the 21 cases of stone, absent in 7 and unrecorded in 2. In the cases without stone it was present in 4, absent in 7 and unrecorded in 4 cases. In the 5 cases of stone in the ureter this symptom was constantly present. Fever was present in 8 of the 21 stone cases, absent in 12 and unrecorded in 1. Of the 15 cases in which stone was absent fever was present in 4, absent in 7 and unrecorded in 4. In all these cases fever was present only when infection was known to exist. Tenderness was present in 20 of the 21 cases of stone. In 16 cases it was present in the region of the kidney; in 1 the tenderness existed over the ureter, the stone being subsequently found in the kidney; in another case the tenderness was chiefly over the kidney, the stone being found in the lower end of the ureter. In 3 other cases of stone in the lower ureter tenderness was most marked from one to two inches above the external abdominal ring. Of the 15 cases without stone there was renal tenderness in 11, while in the remaining 4 the records do not mention it. Renal tumor was rarely encountered in uncomplicated cases of renal calculus. Of the 21 stone cases hematuria was present in 10, in 9 it was absent, and in 2 the history was defective. Blood was found in 10 cases, in 7 it was macroscopic and in 3 microscopic. In the 15 cases in which no stone was found, in 5 there was hematuria, in 6 there was none, and in

4 it was not recorded. In 16 of the 21 stone cases pyuria was noted, in 4 it was absent, and in 1 it was unrecorded. It was also present in 4 of 9 cases in which stone was not found. Thirteen cystoscopies and ureteral catheterizations were done in the calculus cases. Five cases showed typical appearances and the stone was found on operation. In 2 cases the meatal appearances suggested calculus, but no stone was found. In 4 cases the catheter findings indicated renal lesion, but not necessarily stone. In 1 case there were no cystoscopic or catheter evidences of stone and none was found. In the 21 stone cases *x*-ray examinations were made in 12; 10 were positive and 2 negative—the latter being in an exceedingly corpulent individual with stones in both kidneys, which did not show in the plates. Of the cases which did not have stone, *x*-ray examinations were made in 6 instances; 3 were negative and 3 gave shadows and led to erroneous diagnosis. In one of the latter cases a calcareous mass was found adherent to, but outside the ureter. This proved to be the calcified tip of an appendix epiploica which had become adherent by inflammatory exudate to the parietal peritoneum overlying the ureter. Brewer says that there is no single symptom or sign, nor any group of symptoms or signs, that is absolutely pathognomonic of renal or ureteral calculus, unless the calculus lies in the lower ureter and can be touched by a metal bougie or catheter. The *x*-ray in competent hands is the most valuable method of examination for the diagnosis of calculous disease of the kidney or ureter. In Brewer's cases it gave positive evidence of the presence or absence of stone in 72 per cent. of all cases. Excluding the imperfect plates, it gave accurate indications in 95 per cent. of cases.

11. **Treatment of Pneumonia in Infants.**—Northrup summarizes his views on this question as follows: How to cure a baby with pneumonia. 1. Castor oil to clear the field of operation. It is the first aid to the injured. 2. Fresh air, cool and flowing. It reddens the blood, stimulates the heart, improves digestion, quiets restlessness and aids against toxemia; regulate the temperature of the air in the room inversely to that of the child. The patient's feet must always be warm and the head cool. 3. Plenty of water, inside and outside. Temperature as indicated by child's temperature. 4. Quiet and rest. 5. Correct the feedings to prevent fermentation and the formation of gas in the abdomen. If necessary, give high, hot salines. 6. Antipyretics: Water; no coal-tar products. 7. Heart stimulants: Fresh air, hot foot baths, relieving tympanitis and crowding. Hot foot baths and hot salines can be given in a cold room; both can be given under bed clothes. 8. Drugs: Whisky and strychnin. How to kill a baby with pneumonia.—Crib in far corner of room with canopy over it. Steam kettle, gas stove (leaky tubing), room at 80 F. Many gas jets burning. Friends in the room; also the pug dog. Chest tightly enveloped in waistcoat poultice. If child's temperature is 105 F., make a poultice thick, hot and tight. Blanket the windows, shut the doors. If these do not do it, give coal-tar antipyretics and wait.

Medical News, New York.

February 18.

13 Intrapleural Complications in Pulmonary Tuberculosis. S. G Bonney, Denver.
14 Observations on 28 Cases of Prostatectomy. J. Bentley, Squier, N. Y.
15 The Opium Question in the Philippines. James A. LeRoy, Durango, Mex.
16 *Some So-called Rheumatisms. James J. Walsh, New York City.
17 Case of Primary Malignant Tumor of the Lung. Maurice Packard, New York City.
18 Calculi in Blandin's and Submaxillary Glands. Reports of Cases. Herman Jarecky, New York City.
19 Prognosis and Treatment of Chronic Nephritis. A. C. Morgan, Philadelphia.

16. **So-Called Rheumatisms.**—Walsh discusses the diagnosis of the painful affections of muscles and joints which usually are diagnosed as being rheumatism. Mention is made of a rheumatic condition in the upper arm and shoulder in a motorman and in a baseball pitcher, and Walsh suggests that in these two instances the pains were probably occupation pains. Another patient was a finisher in a molding works, and the third, a stone cutter, complained of pains in the hands and forearm. These three patients did not drink alcohol to excess, but they did take some whisky every day, and Walsh is of the opinion that a neuritis was set up in the nerves which the occupations of these patients caused them to use so much, and that as a consequence the low-grade neuritis finally developed to such a degree as to make further use of the muscle supplied by the affected nerves practically impossible. Any nerve that is overused will apparently be affected in the same way, and as many outdoor workers take some whisky straight pretty regularly, it is not surprising to find that some of them have an idiosyncrasy and develop a low-grade alcoholic neuritis. Alcohol, however, is not the only substance that acts thus insidiously. Lead often produces the same symptoms without causing any wrist drop. There is scarcely any occupation, says Walsh, in which movements are frequently repeated, or in which a particular position is maintained for a long time, in which neuritis may not be seen. Lumbago is undoubtedly more frequent among tailors than among any other class of men; sciatica is very common in those who actively bend the body at the hip, as for instance, shovelers. Those who have to stand on their feet much usually suffer in the lowest joint of the leg, at the ankle. There are few waiters who do not suffer to some degree, at least, from flat-foot. A certain number of cases of sciatica will be found in those who sit in awkward positions or in unsuitable chairs while doing much writing or clerical work. Just why sensitive nerves slightly irritated or in a sub-inflammatory condition, should produce more discomfort on rainy days, is not easily explained. The fact of the matter seems to be that any drop in the barometer by making the pressure on the surface of the body less than it was before, permits a dilatation of the capillaries at the periphery with a constant tendency to congestion that makes nerves more sensitive than they were before, especially if they have been affected by some low-grade pathologic condition. Walsh thinks that much of the so-called uric acid diathesis with the consequent rheumatic pains is nothing more than neuritis of various kinds due to overexertion, pressure on nerve trunks, preventing proper nutrition, presence of irritant substances in the blood, such as alcohol, lead, and the blood disturbances of diabetes, and to some inherited weakness of special sets of nerves.

New York Medical Journal.

February 18.

20 *Locomotor Ataxia Successfully Treated with Ultraviolet Rays. J. Monroe Liebermann, New York City.
21 Pathology of Cerebellar Tumors. (Concluded.) T. H. Weisenburg, Philadelphia.
22 Diagnosis of Tumors of the Cerebellum and the Cerebellopontile Angle, Especially with Reference to Their Surgical Removal. (Concluded.) Charles K. Mills, Philadelphia.
23 Remarks on the Surgical Aspects of Tumors of the Cerebellum. (Concluded.) Charles H. Frazier, Philadelphia.
24 Report of Three Cases of Ruptured Tubal Pregnancy. F. Alan G. Murray, Mount Savage, Md.
25 Report of a Case of Fibromata of the Vulva. Thomas S. Burr, South Bend, Ind.
26 Case of Mania à Potu and Epilepsy. Henry F. Collins, Franklin, Maine.
27 Report of a Case in Which a Bullet Caused Nine Perforations of Bowels; Operation and Recovery. J. B. Boucher, Hartford, Conn.

20. **Ultra-Violet Rays in Locomotor Ataxia.**—Liebermann reports the results he has obtained in 36 cases of locomotor ataxia treated with the ultra-violet ray. The ages of the patients ranged from 24 to 63 years. Four have been restored to good health and are now able to resume their usual vocations. Twelve have been greatly benefited, the power of coordination has been restored, pain abolished and the ability to use the upper and lower limbs without any assistance has been established. All are able to rise, to dress and to undress themselves without any help, and are sometimes able to perform such delicate operations as fixing the necktie or tying their shoes in a stooping position. In 18 cases the disease is apparently arrested with hope of further improvement and final restoration of different functions. Two patients died during treatment, one from lobar pneumonia, the other of erysipelas of the head. These cases had for years received differ-

ent forms of treatment, and while some improvement had followed from these methods, none of them had made such gratifying progress as since submitting to the ultra-violet ray treatment. For the purpose of dehematization Liebermann uses the cataphoric electrode (with a round piece of lint) saturated with adrenalin chlorid (1 to 1,000). A pad with zinc plate is applied to the abdomen, leaving it on for from three to five or ten minutes. He uses the static machine for exciting the ultra-violet lamp with the large Leyden jars as condensers. The lamp is connected by its conducting cords to the outer surface of the jars. Speaking of the mode of action of the ultra-violet ray, Liebermann suggests that it is possible that its powerful stimulating effect induces more activity in the natural healthy cell and diminishes the nutrition of connective tissue setting up a more active local metabolism; or, that it induces a local accumulation of heat energy and a congestive process through which neutrophile leucocytes are caused to immigrate in the vicinity of the degenerated cellular elements. The application of the ultra-violet ray to dehematized tissue must be made with great care and judgment. It should never be applied to more than two localities at each seance, and the area treated should be varied so that every day a different region of the cord is exposed. Liebermann treats alternately the cervical, lumbar and sacral regions. His routine treatment is as follows: 1. A warm half-bath at night before going to bed with light massage. 2. Ultra-violet rays in sittings of from ten to thirty minutes, three times a week. 3. Static electricity by means of the Morton wave current or wooden brush daily, from fifteen to twenty minutes.

Boston Medical and Surgical Journal.

February 16.

28 *Prognosis of Epilepsy. W. A. Turner, London.
29 Study of Birth Rates, General Death Rates and Death Rates from Cancer for the New England States for the Year 1900. W. F. Whitney, Boston.
30 Effect of Tubal Abscess on the Position of the Ureter. E. B. Young, Boston.
31 Surgery of Meckel's Diverticulum. J. W. Keefe, Providence, R. I.
32 *Perilous Calms of Appendicitis. R. W. Hardon, Chicago.

28. Prognosis of Epilepsy.—Turner reports his observations made on 516 cases of epilepsy. The following eliminations were made: All cases which showed any co-existent complication, such as organic cerebral disease, and all cases of idiocy and pronounced imbecility. Any transitory amelioration resulting from medicinal or other treatment was checked by fixing the minimum period of observation at two years. Sex, says Turney, plays little part in the general prognosis of epilepsy. Rather more males than females show arrest of the seizures, but at the same time the former sex gives a greater percentage of confirmed cases. As to the influence of an hereditary disposition, it would appear that there is as great a chance of arrest of epileptic fits in those who have, as in those who have not, a known family history of epilepsy. In those who have an hereditary history the chances as to whether the fits become arrested, improved or confirmed, are in any given case about equal. That as regards general improvement, more is to be expected in those who have no hereditary disposition, while a considerably smaller percentage of confirmed epileptics is to be found amongst those who have no family predisposition to the disease. Epilepsy commencing under 10 years of age is least favorable for arrest or improvement, and most favorable for the production of confirmed cases. In those in whom the disease commences during the period of puberty is to be found the greatest percentage of confirmed cases. Between the twenty-first and twenty-fifth year of age there is a steady diminution in the percentage of arrests and a progressive increase in the percentage of confirmed cases. After the latter age there is again a diminution in the number of confirmed cases, while senile epilepsy is essentially a tractable disorder. The earlier a case is brought under systematic treatment, the more hopeful the prognosis and the greater the probability of improvement. The longer the interval between the attacks, the greater the prospect of arrest or improvement. The greatest percentage of arrest occurred in cases of grand mal. Then followed the cases of the combined grand and petit mal, while the least favorably were the cases of petit mal occurring alone. Long periods of arrest, though as a rule indicating a favorable prognosis, are not synonymous with the cure of the disease. Long remissions may occur under bromid administration, to be followed by a relapse when the administration of the drug is discontinued. On the other hand, a remission of long duration may be broken by an accidental circumstance, such as a blow on the head, a fall, childbirth, or an acute inflammatory disorder. In order to obtain the percentage of cures Turner took only those cases which were under observation for a period of at least nine years. They form a total of 147, of which 15 were arrested for nine or more years, giving a percentage of 10.2 cures. Of the series of cases in which the disease was arrested, somewhat over 50 per cent. showed arrest within one year of treatment.

32.—See abstract in The Journal, xliii, p. 1409.

St. Louis Medical Review.

February 11.

33 Peculiar Malformation of the Bladder. Herman Tuholske, St. Louis.
34 Expectant Treatment of Appendicitis. An Excursion Into the Field Between Surgery and Medicine. A. C. Bernays, St. Louis.
35 Rupture of the Gall Bladder. (Spontaneous and Traumatic; With and Without Operation.) Historical Review of 203 Cases. Benjamin M. Ricketts, Cincinnati.

Lancet-Clinic, Cincinnati.

February 18.

36 Is Man an Omniverous Animal? Frank L. Rattermann, Cincinnati.
37 Duehrssen's Vaginal Cesarean Section and Deep Cervical Incisions. E. Gustav Zinke, Cincinnati.
38 Value of the X-ray to the General Practitioner. James E. Coleman, Canton, Ill.
39 Need of a Physician in Charge of the Hygiene of Our Schools. Hugh M. Moorf, Oxford, Ohio.

University of Pennsylvania Medical Bulletin, Philadelphia.

February.

40 Volume of Nitrogen Evolved from One Gram of Urea by the Action of Alkaline Sodium Hypobromite Solution. Leon A. Ryan and John Marshall.
41 *Incontinence of Feces in Children. Maurice Ostheimer.
42 Primary Degeneration of the Pyramidal Tracts; Study of Eight Cases, with Necropsy. (Concluded.) William G. Spiller.

41. Incontinence of Feces.—The presentment of three cases of incontinence both of feces and of urine, led Ostheimer to search the literature for similar cases. In all, only a dozen cases were discovered. The cause of incontinence of feces in children is either general, following wasting diseases, epilepsy, general paralysis and infectious fevers, or local, such as stretching of the anal sphincter by large prolapse of the rectum, by impaction of feces with chronic constipation or as the result of operation near the anus. In one of his cases, the condition followed an attack of scarlet fever. It persisted for two years, with gradually increasing general debility. In six months, on nutritious food, fresh air and tonics, the child completely recovered. The second case, a child aged 6½ years, suddenly lost control of both anal and vesical sphincters. He had had enuresis, both nocturnal and diurnal until almost four years old. With fresh air, exercise, atropin and strychnin, he improved at once. He had three relapses, but speedily recovered under the same treatment. The third case, a child aged 4½ years had had incontinence of feces and enuresis for an entire year. He was very nervous and had paroxysmal attacks of pain, with micturition, often passing urine colored with blood. With good food, fresh air and strychnin, the incontinence of feces disappeared in ten days, but the enuresis persisted. This was found to be due to a vesical calculus, after the removal of which the patient recovered completely.

Archives of Ophthalmology, New York.

February.

43 The Ophthalmo-Kinetograph, an Apparatus to Record Ocular [illegible] F. B. Coburn, New York.
44 [illegible] Treated of in the Code of Hammurabi. [illegible] delphia.
45 *Optic Neuritis During Lactation. G. S. Derby, Boston.
46 Presbyopia at an Early Age. W. Koster-Gzn, Leyden, Germany.
47 *Healing of Perforating Incised Wounds of the Cornea. A. Weinstein, St. Petersburg, Russia.

48 Flat Sarcoma (Endothelioma) of the Choroid. A. Knapp, New York.
49 Medullated Nerve Fibers in the Retina. K. Mayerweg, Vienna.

45. **Optic Neuritis During Lactation.**—Derby reports one case and reviews 24 others of optic neuritis occurring during lactation. The average age appears to be about 29 years, the youngest patient being 21, and the oldest 42. Primiparæ and multiparæ seem to be affected with equal frequency. Usually, there is but a single attack, although several cases give a history of diminished vision after each pregnancy. The disease affects strong, healthy women as frequently as it does those who are less robust. In practically all cases the eyes were said to be healthy previously. The seventh week was the time of election for the process to begin but it varied in wide limits from shortly before birth to over a year after. Establishment of the milk secretion, not actual nursing, is regarded as the important factor in the production of the disease, for in one case the child was premature and died, while in another it was only nursed once, dying a short time after birth. Suppression of the milk secretion coincident with the onset of the disease has been reported twice. Occasionally the patient gave a history of protracted nursing, but in a large majority of cases lactation has been entirely within normal limits. Both eyes are more commonly affected than one alone, and it is interesting to note that the monocular cases seem more prone to develop a retrobulbar neuritis than a papillitis. Ophthalmoscopic examination shows the loss of vision to be due to an inflammation of the optic nerve, the signs of which are more or less apparent at the disc. Generally, there is a well-marked papillitis, occasionally one of extreme severity, with extension of the process into the surrounding retina, while in the retrobulbar type, there may be no visible sign of inflammation, although double blindness exists. Atrophy of a varying degree usually results, but may be absent. The amount of visual diminution varies greatly, but commonly reaches a considerable degree, even to absolute blindness. The vision bears no relationship to the severity of the process, since almost normal sight may be noted, in spite of a well-marked papillitis, while total blindness has been observed without changes visible to the eye. In a corresponding manner, the vision tends to regain its normal acuteness, notwithstanding the development of atrophic change. Certain cases have shown a tendency to recurrence during each succeeding pregnancy, and in these, at the end of several attacks, there is likely to be a permanent diminution of sight. Frontal headache is a constant precursor of the disease. The pain is often localized in the orbit, and deep tenderness may be elicited by pressure on the eyeball, while movement of the eye may cause considerable discomfort. Although, as a rule, general disease does not accompany this affection, yet certain cases have shown an acute onset with headache, chills, fever, vomiting, and general malaise. In such cases suppression of the milk secretion is apt to occur. Derby is of the opinion that there is little evidence to connect this affection with lactation, and that the term lactation indicates simply, in the absence of a better term, the characteristic by which these cases may be most easily recognized. Being still in the dark as to the cause of this obscure affection, treatment must be on general lines. Elimination should be stimulated. The power of resistance must be increased in every way. Weaning should be advised. Recurrent attacks should be watched carefully.

47. **Healing of Incised Corneal Wounds.**—Weinstein has made an experimental study of the healing of incised wounds of the cornea. He found that regeneration does not take place simultaneously in all parts, but that the epithelium is first restored, then the true corneal tissue, and finally, Descemet's membrane. The proliferation of the epithelium begins immediately after the receipt of the injury, reaching its maximum in three or four hours, then gradually decreases and disappears about the end of the first day. In most cases the epithelium in the region of the scar remains considerably thicker than normal, and this thickening is doubtless useful in compensating partially, if not entirely, for the disturbance of the corneal curvature which results from the cicatricial contraction. The cornea propria is regenerated wholly through active multiplication of its own elements. In all probability, leucocytes take no part therein. The anterior portion of the wound becomes completely filled with granulation tissue at a time when the posterior portion is still occupied by fibrin. The fibrin which fills the wound participates only passively in the process of healing. Granulation elements appear in the wound after the lapse of three days, and multiply rapidly by mitotic segmentation. Descemet's membrane is completely restored after a perforating wound of the cornea.

International Clinics, Philadelphia.

Vol. IV, 14th Series, 1905.

50 The Excessive Use of Drugs in the Treatment of Chronic Diseases, with Reference to Medicinal Intoxications. George Hayem.
51 Indication for the Dechloridation Treatment. Adolphe Javal, Paris.
52 Radium; Its Value in the Treatment of Lupus, Rodent Ulcer and Epithelioma, with Reports of Cases. Myron Metzenbaum, Cleveland.
53 Treatment of Patients Who Seem Desperately Ill in Consequence of Accident, Hemorrhage or Infection. F. Lejars, Paris.
54 Chronic Polycythemia with Enlarged Spleen (Vaquez's Disease), Probably a Disease of the Bone Marrow. F. Parkes Weber and J. H. Watson, London.
55 Importance of Pathologic Diagnosis and of Etiologic Diagnosis, as Illustrated by Several Cases of Joint Disease—Arthritis Deformans, Pneumococcic Arthritis, Gonococcic Arthritis and Sciatic Neuritis, Miscalled Rheumatism. Solomon Solis-Cohen, Philadelphia.
56 Remarks on the Incidence of Gout in the United States of America and in New Communities. Dyce Duckworth, London.
57 Clinical Significance of Albumosuria. H. Senator, Berlin.
58 Differential Diagnosis of the General Enlargements of the Liver. Alexander Crombie, Calcutta, India.
59 Functional Heart Murmurs; Their Causation and Diagnosis. Robert D. Rudolf, Toronto.
60 Lateral Curvature of the Spine. E. H. Bradford, Boston.
61 Chronic Arthritis; Linear Osteotomy for Ankylosis After Tuberculous Arthritis. Wisner R. Townsend, New York City.
62 Tuberculous Spondylitis; Tuberculous Coxitis. John L. Porter, Chicago.
63 *Nerve Anastomosis for the Cure of Infantile Palsy. James K. Young, Philadelphia.
64 *Operative Treatment of Constipation. W. Arbuthnot Lane, London.
65 Some Cases of Gastric Surgery. Anthony A. Bowlby, London.
66 *Symptomatology and Diagnosis of Glenard's Disease. A. Ernest Gallant, New York City.
67 Post-climacteric Hemorrhages; Their Cause and Treatment. F. A. L. Lockhart, Montreal.
68 Traumatic Injury of the Spinal Cord; Syringomyelia; Puerperal Insanity; Alcoholic Neuritis; Paretic Dementia Due to Alcoholism; Defective Mental Development; Hysteria. Daniel R. Brower, Chicago.
69 Recent Investigations Concerning the Pathology of the Infectious Diseases. Aldred Scott Warthin, Ann Arbor, Mich.
70 Etiology and Pathology of Amebic Infection of the Intestine and Liver. Charles F. Craig, San Francisco, Cal.

63. **Nerve Anastomosis in Infantile Palsy.**—Young reports the case of a child, 5 years old, on whom this operation was done for the relief of a paralysis of the right leg. The peroneal nerve was exposed and the proximal extremity supplying the anterior tibial muscle was divided. A slit having been made in the musculo-cutaneous nerve, the cut extremities of the peroneal nerve were inserted into this and secured with fine catgut. The entire leg, from the toes to the hip, was then secured in a plaster cast. Thirteen days later the cast was finally removed and there was found to be a slight return of power in the anterior tibial muscle. Six months later, all the muscles of the anterior tibial region gave a good response to a slowly interrupted faradic current. The most important factors of the operation, says Young, are anatomic exactness and precision in the identification of the nerves. Rapidity of execution is important in order that the nerves may not be exposed to accidental injury during the course of the operation. In the selection of suitable cases for this operation two factors must be considered: The time which has elapsed since the occurrence of the palsy, and the reactions of the muscles to the electrical currents. A suitable time for operation would appear to be between six months and three years after the occurrence of the palsy, although experience may extend the time of operation to a later period. If reactions of degeneration are present the operation is useless.

64. **Operative Treatment of Constipation.**—The method

adopted by Lane for eliminating the large intestine as a portion of the gastrointestinal tract is to put the ileum into the big bowel. This is done by taking a loop of ileum about ten inches from the cecum and emptying it of its contents and preventing any entry into it by means of clamps. Such a portion of the sigmoid loop or upper part of the rectum as may be most convenient is then prepared, and adhesions, if existing, are divided as freely as possible. Care should be taken to avoid infection of the peritoneum or of the edges of the wound. The empty portions of the ileum and large bowel are then stretched alongside, and incisions, about two inches long, are made in each. The corresponding edges are sewn firmly together by continuous silk suture, supplemented by another continuous suture external to it, which passes through the peritoneal and muscular coats of the bowel. This having been done, the ileum is divided transversely, and each end closed by a double row of sutures.

66. **Glenard's Disease.**—Gallant makes the following clinical classification: 1. Developmental, which can be most frequently accounted for on the following grounds: At puberty, when the girl is rapidly increasing in stature, and her menses begin to drain the system, all healthful exercise is interdicted and her clothing is hung from the waist by tightly drawn bands, she is compressed within a corset, and light short skirts are exchanged for long, heavy trailing dresses. As the spinal column lengthens, it should carry upward all the viscera attached thereto, but owing to compression at the waist line and the weight of clothing this can not take place; stretching of the ligaments occurs and the viscera are distorted, and hang at a much lower level than normal. 2. Postpartum type, due to overdistension of the abdominal cavity by the pregnant uterus. 3. Postoperative type, occurring after operation for the removal of a tumor encroaching on the abdominal cavity. 4. Traumatic type, following a blow on the kidney region, sitting down suddenly or some unusual effort. 5. Nutritional type, as a sequela of confinement to bed for a long time by an injury or a lingering disease, involving a great loss of weight and muscular tone.

California State Journal of Medicine, San Francisco.

February.

71 Surgical Interference in Tuberculosis of the Bladder. G. MacGowan, Los Angeles.
72 Varieties and Etiology of Glaucoma. B. F. Church, Los Angeles.
73 Pathology of Glaucoma. W. H. Roberts, Pasadena.
74 Treatment of Glaucoma. W. S. Fowler, Bakersfield.
75 Tonsils as Portals of Infection. M. W. Frederick, San Francisco.
76 Cases Simulating Grave Mastoiditis. F. Baker, San Diego.
77 Congenital Dislocation of Hip. P. C. H. Pahl, Los Angeles.
78 Etiology of Infantile Eclampsia. J. M. French, San Diego.
79 Posture in Treatment of Disease. C. M. Cooper.
80 Dangers of Proprietary Remedy Prescribing. W. E. Bates, Davisville.
81 Report of a Case of Pernicious Anemia. B. F. Stevens, El Paso, Texas.

The Medical Standard, Chicago.

February.

82 New Theory of Fever. T. G. Atkinson, Chicago.
83 Paraffin Distended Ureters. Demonstrating the Ureteral Isthmuses and Constrictions—21 from Human, 1 from Beaver. B. Robinson, Chicago.
84 Ear Diseases Following the Acute Infections of Early Childhood. G. E. Shambaugh, Chicago.
85 Importance of Cholecystitis and Its Relation to Diseases of the Upper or Cephalic Peritoneal Cavity. B. Holmes, Chicago.
86 Revival of Medical Learning. E. J. Kempf, Jasper, Ind.
87 Cycloplegics in Refraction. C. G. Darling, Chicago.
88 Treatment of Congenital Club-foot and the Modeling Redressment. F. Mueller, Chicago.
89 New and Efficient Treatment for Specific Urethritis. C. E. Sisson, Elgin, Ill.
90 *Therapeutic and Criminal Abortion. C. B. Reed, Chicago.

90.—See abstract in The Journal, Dec. 17, 1904, p. 1890.

The Journal of the Michigan State Medical Society, Detroit.

February.

91 When Shall the Lacerated Cervix Uteri Be Repaired? H. W. Yates, Detroit.
92 Catheterization of the Ureters. W. T. Dodge, Big Rapids.
93 Recent Work in Ophthalmology. R. Conner, Detroit.
94 Chronic Bright's Disease and Pregnancy. W. H. Sawyer, Hillsdale.
95 Hysteria in Its Relation to Gynecology and Obstetrics. G. F. Butler, Chicago.

Journal Missouri State Medical Association, St. Louis.

February.

96 Psychological Therapeutics. E. H. Spooner, St. Louis.
97 Report of the State Bacteriologist to Missouri State Board of Health on an Epidemic at Wien, Chariton County, Missouri. A. J. Detweiler, Columbia, Mo.
98 Leukemia. M. P. Overholser, Harrisonville, Mo.
99 Consumption and Its Correct Treatment. C. W. Watts, Fayette, Mo.

The Journal of the Kansas Medical Society, Lawrence.

February.

100 Etiology and Prevention of Typhoid. S. J. Crumbine, Topeka.
101 Water Supplies of Southern Kansas. E. Bartow, Lawrence.
102 Some Faults in the Laws Regulating the Practice of Medicine in the Various States. J. E. Jewett, Moran, Kan.
103 Some Unusual Syphilitic Eruptions. W. Frick, Kansas City, Mo.
104 The Nutrition of the Skin. R. E. McVey, Topeka.
105 Case of Tetanus with Complications. C. B. Buck, Abilene, Kan.
106 Immunity. G. H. Hoxie, Lawrence.
107 Can Men and Women Doctors Be a Help to Each Other? M. Lobdell, Beloit, Kan.

Oklahoma Medical News Journal, Oklahoma City.

January.

108 The District Medical Society as a Factor in Medicinal Education. J. T. Moore, Galveston.
109 Pelvic Cellulitis. F. H. Clark, El Reno, Okla.

Journal of Medicine and Science, Portland.

January.

110 Prevention of Venereal Diseases. G. A. Pudor, Portland.

The Louisville Monthly Journal, Louisville.

February.

111 Has Louisville a Competent Medical Profession? J. M. Mathews, Louisville.
112 *Cysts of the Mesentery; a Clinical Note. L. S. McMurtry, Louisville.
113 Nephritis. D. O. Hancock, Henderson, Ky.
114 Congenital Syphilis. Report of Cases. H. A. Cottell, Louisville.
115 Sarcoma of the Eye, Eyelid and Orbit. S. G. Dabney, Louisville.
116 Excision of the Elbow Joint for Traumatic and Arthritic Ankylosis. B. M. Ricketts, Cincinnati.
117 Treatment of Angioma by Wyeth's Method. A. H. Barkley, Lexington.

112.—This article has appeared elsewhere. See The Journal, Jan. 14, 1905, p. 160.

Journal of the Mississippi State Medical Association, Vicksburg.

February.

118 Report of a Case of Malarial Hemoglobinuria with Comments on Treatment. J. W. Gray, Clarksdale.
119 An Address on the Business Affairs of the Profession. J. Waldauer, Vicksburg.
120 Notes on Malaria; Its Etiology and Prophylaxis. D. S. Humphreys.
121 Pregnancy Complicating Typhoid—Report of a Case. H. H. Ramsay, Perkinston.
122 Pelvic Abscess. A. G. Payne, Greenville.

The Vermont Medical Monthly, Burlington.

December.

123 Inflammation and Ulceration of the Sigmoid Flexure. D. C. Hawley, Burlington.
124 Intracranial Psammosarcoma Without Paralysis. W. D. Berry, Burlington.

The Alabama Medical Journal, Birmingham.

January.

125 Dr. Chas. M. Rosser's Presentation Speech of the Dr. W. E. B. Davis Statue, Dec. 14, 1904.
126 Tracheotomy for Gunshot Wounds of the Trachea. J. M. Gaston, Atlanta.
127 Ethical Relations of the Medical Profession to Sociology. L. Whaley, Birmingham.

Southern California Practitioner, Los Angeles.

January.

128 Prognosis and Treatment of Laryngeal Tuberculosis. E. A. Macdonald, Redlands, Cal.
129 Convulsions. S. A. Ellis, Azusa, Cal.
130 Mucosa of Upper Respiratory Tract. A Plea for More Rational Treatment. F. W. Miller, Los Angeles.
131 Tuberculosis. A Layman's Idea. R. W. Poindexter, Los Angeles.
132 Initial Lesion of Syphilis. D. B. Thornton, Los Angeles.
133 Pneumonia in High Altitudes. W. S. Smith, Prescott, Ariz.

Texas Medical News, Austin.

January.

134 Treatment of Rheumatoid Arthritis. J. L. Short, Houston.
135 Substitution. W. F. Waugh, Chicago.
136 Typhoid Fever. Alward H. White, El Paso.

Medical Review of Reviews, New York City.

January 25.

137 Three Cases of Melanosarcoma. David Webster, New York.
138 How Can Clinical Pathology Be Made of More Practical Importance to the Average Practitioner? Louis F. Bishop, New York.

Mobile Medical and Surgical Journal.

January.

139 Pelvic Abscess. Wm. T. Henderson, Mobile.
140 Round Ligament Ventrosuspension of the Uterus with Report of a Case. J. B. Killebrew, Mobile.
141 Infection and Immunity. Neal E. Skellers.
142 Some Observations on Estivoautumnal Malarial Fever. Charles A. Mohr.

Wisconsin Medical Journal, Milwaukee.

January.

143 The Establishment of an Epileptic Colony in Wisconsin. W. A. Gordon, Oshkosh, Wis.
144 Review of Laryngeal Diphtheria with Report of Cases. P. H. McGovern, Milwaukee, Wis.
145 Affections of the Facial Nerve in Diseases of the Ear. C. Zimmermann, Milwaukee, Wis.
146 Internal Medication in Infection of the Biliary Passages. F. D. Brooks, Milwaukee.
147 Some Methods of Home Modification of Milk in Infant Feeding. A. W. Myers, Milwaukee.

Memphis Medical Monthly.

February.

148 Local Influence of the Toxins of the Acute Infections of the Lungs on the Lung Structure. Eugene Wasdin, Memphis, Tenn.
149 Radical Operation for Internal Hemorrhoids Without General Anesthesia. A. B. Cooke, Nashville, Tenn.
150 Heterophoria. G. H. Savage, Memphis, Tenn.
151 Treatment of Hypertrophied Faucial Tonsils. J. F. Hill, Memphis.
152 Why Diseased Tonsils Should Be Removed. Richmond McKinney, Memphis.
153 Edebohls' Operation, Report of a Successful Case. W. B. Sanford, Memphis.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

February 4.

1 Some Points in the Differential Diagnosis of Scarlet Fever, German Measles and Measles. F. J. Poynton.
2 *The Prodromal Rashes of Measles. J. D. Rolleston.
3 *Case of Fibroid Pneumonia. A. G. Auld.
4 Lobar Pneumonia Following Measles. F. C. Bottomley.
5 Various Phases of a Hospital's Work. C. Nixon.
6 Relations of Medical Men to Each Other. R. MacLaren.
7 Calculation of the Date of Delivery in Pregnancy. W. J. Caie.
8 *Scrofulous Ulcers of the Legs (Bazin's Malady) Treated by High-frequency Currents. W. F. Somerville.
9 Corneal Reflex the Most Reliable Guide in Anesthesia. H. B. Gardner.
10 Some Points in the Treatment of Brachialgia and Sciatica. J. E. Harburn.
11 Case of Precocious Puberty in a Female Cretin. F. W. Kendle.

2. **Prodromal Rashes of Measles.**—Rolleston met with prodromal rashes in 30 cases of measles, 42.8 per cent. of the total number of cases (70) observed. The youngest patient in whom a rash was seen was one year old, and the oldest nearly 9 years old. This is sufficient to prove that the eruption was not a mere roseola infantilis, such as is usually attributed to dentition or to the presence of worms. In 22 out of the 30 cases the prodromal rash appeared on the first day of the disease. In 3 of these the specific eruption followed on the second day; in 4 on the third day; in 9 on the fourth; in 3 on the fifth; in 2 on the sixth, and in 1 it was delayed until the eighth day. In 7 cases the prodromal rash appeared on the second day; in 3 of these cases it was followed by the specific eruption on the fourth day; in 3 on the third, fifth and sixth days respectively, and in 1, a case of *morbilli sine morbillis*, no specific eruption appeared. In the remaining cases prodromal rash was first seen on admission to the hospital on the fifth day and was followed by the specific eruption on the sixth day. In 10 cases the prodromal eruption preceded catarrhal symptoms by intervals ranging from one to six days. In 18 cases the two phenomena appeared on the same day, but in 11 cases the catarrhal symptoms, although present, were ill developed for a period of from one to three days after the first appearance of the prodromal rash. In only 2 cases did the prodromal rash appear subsequently to the catarrhal symptoms, in each case the interval being only one day. In 12 out of 24 cases in which Koplik's spots were noted, the prodromal rashes preceded the buccal exanthem by periods varying from half a day to five days. In the remaining 12 cases the two phenomena appeared on the same day. The isolated macules, 14 cases; blotchy erythema 10 cases; isolated papules, 9 cases; urticaria, 9 cases; scarlatiniform rash, 9 cases; circinate, erythema, 1 case. In point of time the macules and papules were the first to appear. Urticaria was the latest thing sometimes co-existent with the specific eruption. The isolated papules were frequently of the size and shape, and sometimes of the same distribution as the rose spots of enteric fever. Sometimes they would suggest the eruption of rötheln. The frequent appearance of scarlatiniform rashes on the second day of the disease, before the development of catarrhal symptoms, the accompanying injection of the soft palate and fauces and occasional deposit on the tonsils, with submaxillary adenopathy, add to the difficulties of the diagnosis. The transient nature of the eruption and the association of Koplik's spots, stomatitis and catarrhal symptoms are important factors in making a diagnosis of measles. The distribution of the eruption was as follows: On the trunk, 28 cases; behind the ears, 15 cases; limbs, 14 cases; face, 4 cases; neck, 2 cases. The short-lived existence of most of these rashes serves in a degree to account for the scanty attention they have received. Closely associated with their transient existence is the tendency to be localized, and not to affect any special situation. Highly characteristic is the simultaneous association of several varieties of eruption, and the fact that these prodromal eruptions are not accompanied by any cutaneus irritation. There is no pain or pruritis, nor is there any subsequent desquamation. These initial rashes are not of any prognostic value.

3. **Fibroid Pneumonia.**—Auld reports a case of this kind occurring in a little girl aged 8 years. The onset of the disease was sudden; there was headache, vomiting and fever, followed by delirium. The right lung became solid and a diagnosis of pneumonia was made. On the seventh day the temperature fell to 99.6 as though a pseudo-crisis had been attempted. Instead of resolving, however, the fever continued, presenting for weeks the character, more or less, of the continuous fever. A rather abrupt rise of temperature occurred in the third week. At this time the breathing was frequent and shallow and the skin was hot and dry. The right side was motionless. The heart's apex was in the normal position. Vocal fremitus was increased all over the right lung and the percussion note was so dull from apex to base as almost to warrant the designation of "flat." There was high-pitched tubular breathing with whispering pectoriloquy; no râles developed in the apex and the dullness and tubular breathing became less marked there; there was no fluid on aspiration. The temperature gradually fell until it reached normal in the tenth week. The pulse rate continued about 140, and the respirations about 40. There was no cough or expectoration. The *x*-ray showed the right lung in uniform deep shadow with the exception of the extreme apex, which showed a mottling of light and shade. The shadow was due to a consolidated lung. The patient then developed considerable cough with expectoration, the latter containing numerous tubercle bacilli. It was evident that the right apex had become extensively invaded by tubercle bacilli. The child improved later, however, and the apex showed signs of healing. At present the patient is entirely well. Auld concludes that the personal history, symptoms and physical signs leave little room for doubt that the initial lesion was an acute pneumonia, and that it invaded the lung which contained no gross lesion of appreciable character. The disease beginning acutely, may in reality be chronic in nature from the very first day. The inflammation extended to the fixed corpuscles of the alveolar walls, causing them to divide and migrate into the fibrinous exudation. In this way the alveolar cavities become filled with organized deposit. This must occur early, as only

the red or fibrinous exudation is capable of organization. The disease is febrile, it is pneumonic and it is fibroid, hence it is a fibroid pneumonia.

8. *Bazin's Malady.*—Somerville reports the case of a young woman aged 16 who presented on the anterior aspect of the left leg seven punched-out ulcers ranging in size from a little smaller than a dime to the size of a half-dollar. The ulcers had undermined irregular edges resembling markedly the ulcers produced by specific disease. The skin in the immediate neighborhood of each ulcer had the dark red "violaceous" character described by Bazin, and was free from irritability and tenderness. Forty-one applications of the high-frequency currents were made. The patient sat for about eight minutes on the auto-condensation couch; thereafter the leg was treated by the spray and also with a flat glass electrode of high vacuum connected with the top of the resonator. Very shortly after treatment was commenced the ulcers began to take on a more healthy appearance; they gradually filled up until finally they were covered entirely with healthy skin. A year later the skin was quite smooth and free from induration and although the patient had done considerable walking there was no tendency to recurrence.

The Lancet, London.

February 4.

12 The Infectivity and Management of Scarlet Fever. W. T. Gordon Pugh, London.
13 *Primary Heart Failure as the Immediate Cause of Death in Acute Diphtheritic Toxemia. Charles Bolton, London.
14 *The Cancer Problem. J. Beard, Edinburgh.
15 *Characters of the Bacillus Coli as an Indicator of Excretal* Contamination. Wm. G. Savage.
16 *Case of Typhoid Fever Presenting Some Unusual Features. Kenneth Anderson.
17 Hydatid Cyst Simulating Subphrenic Abscess. J. Porter Parkinson, London.
18 *Prognostic Value of the Diazo Reaction in Enteric Fever. J. D. Rolleston, Tooting.
19 The Army Medical Service of the Argentine Republic. F. Howard.

13. Heart Failure Cause of Death in Diphtheritic Toxemia.—Bolton says that death in acute diphtheritic toxemia is due to primary heart failure caused by extensive fatty degeneration in the heart and acute degeneration in the motor nucleus of the vagus. It can not be definitely stated whether the acute changes in the vagus nucleus would produce irritation or paralysis of the vagus. As all stages of degeneration are found at the same time it is quite likely that both irritative and paralytic effects may be felt simultaneously by different portions of the heart, and that in some cases an irritative effect may be chiefly evident. The probability is that irregularity of action would be the prominent feature, that this irregularity would be subject to great variations in degree and that in some cases a slowing of the pulse might be expected and in others an increased frequency. Such a lesion would also be quite likely to lead to vomiting. The cardiac dilatation is the result of weakness of the heart wall. The irregular pulse and fatal syncope of acute diphtheritic toxemia are, therefore, due to the disturbed innervation of an acutely degenerated heart. The heart failure exhibited in the acute stage by patients who recover is probably the result of similar though less extensive changes. At a later stage of the disease the results of these changes, together with interstitial cellular infiltration, are sufficient to produce a latent weakness of the heart which can be brought into evidence by some strain, and in this stage also degeneration of the vagus nerve plays a not unimportant part.

14. The Cancer Problem.—Beard says that cancer is an irresponsible trophoblast. As he conceives it in normal development and in a malignant tumor, the matter is simply a question of the victory of a stronger enzyme over a weaker one. Embryologically, the problem of cancer has been to discover the antithesis of two enzymes, and in particular to find out the enzyme capable of destroying a weaker one, and thus of leading to the degeneration of the tumor by simple atrophy. The whole story, says Beard, is but another example of that antithetic alternation which underlies all the phenomena of living things. The solution of the problem of the functional relation of embryo and trophoblast, how the latter nourishes itself by an (intracellular) acid peptic digestion and degenerates slowly by a pancreatic digestion, becomes at the same time the embryologic, if not the medical, resolution of the problems of malignant neoplasms, as well as of chorioepithelioma.

16. Unusual Case of Typhoid.—In Anderson's case, the onset with a rigor and with acute localized abdominal pain seemed to point to some nephritic or perinephritic suppuration and the presence of pus in the urine was at first regarded as confirmatory of this until a history of cystitis was obtained. The rapid amelioration of the pain and tenderness at the end of a week however, was a contraindication, while the irregular temperature, the pyuria and the pulmonary signs suggested the possibility of tuberculosis somewhere. Sibilant râles persisted over the right upper lobe throughout the whole illness. The absence of any cardiac murmurs, of sweats and of hematuria was against infective endocarditis with embolism in the kidney. Widal's reaction was positive and was confirmed later by the appearance of spots, the enlarged spleen and the character of the stools. The absence throughout of cerebral symptoms, even such as headache, of dicrotism in the pulse, of any marked tympanitis and, for a time, of spots which were constantly watched for but which only appeared late in the disease and were limited to about half a dozen on the back, are worthy of note.

18. Prognostic Value of Diazo-Reaction.—Rolleston's observations are based on 6 cases of enteric fever. In all but severe attacks the diazo-reaction tended to disappear in the course of the second or third week, this disappearance shortly preceding or coinciding with the commencement of lysis. Its reappearance during or after the completion of lysis is a warning of recrudescence, of relapse, or of complications directly due to the specific bacillus. A sudden disappearance of the reaction associated with a deterioration of the general condition is a bad sign. The character of the reaction was found to be a useful check to the history.

Bulletin de l'Académie de Medécine, Paris.

20 (Year LXIX, No. 1, January 3.) Formation of an Autoplastic Artificial Ocular Stump by Means of a Pedunculated Skin Flap.—Moignon oculaire artificiel. E. Bruch (Alger).
21 (No. 2.) *Examen du pharynx supérieur par le toucher médiat à l'aide d'explorateurs. A. Courtade.
22 (No. 3.) *Une nouvelle opération sur les muscles oculaires. E. Landolt.
23 Supériorité des sels organiques d'argent sur le nitrate d'argent (silver salts). Darier and Chauvel.
24 (No. 4.) *Appareil que décèle les plus faibles traces d'oxyde de carbone. Albert-Levy and Pecoul.
25 *Des mélanges titrés pour l'anesthésie chloroformique. P. Reynier.

21. Exploratory Sounds for Examination of Pharynx.—Josias in presenting Courtade's communication, remarked that the latter's "exploratory sounds" for examination of the pharynx are in daily use in his clinic and are proving a great improvement over digital examination. The least irregularity in the surface is readily perceived, and children especially submit much more quietly to this mode of investigation.

22. Lengthening the Ocular Muscles.—Landolt proposes for appropriate cases of strabismus the lengthening of the muscle instead of its advancement. He cuts it in the outline of a Z with the middle line perpendicular to the horizontal bars, and slides the two ends along to lengthen a contracted and sclerosed muscle.

24. Apparatus for Testing Purity of Air in Rooms.—The small, portable apparatus described is based on the fact that a fluid containing iodic acid changes color when in contact with 1/200,000 CO_2. The jar containing the iodic acid is heated by a spirit lamp, liberating the iodin, which passes into a glass tube containing chloroform.

25. Automatic Apparatus for Titrated Chloroform Anesthesia.—Reynier criticises unfavorably the various apparatus that have been presented for administering chloroform. The ideal apparatus should be small, solid, easily managed, it should automatically titrate the anesthetic while allowing the dose to be modified at will, and should absolutely prevent the administration of an overdose. He thinks that the apparatus which he has been using recently combines all these desiderata. It is the invention of Dupont, Chabaud and Thurneyssen, and in an experience with 125 subjects it has more than realized all expectations. A thermometer on top records the temperature of the chloroform, and the range of dosage is from 0 to 12 per cent. A minor advantage is that there is no waste of chloroform. The apparatus seems to do away with surgical shock; the patients seem to be less depressed or prostrated and the operation proceeds more smoothly, while the by-effects of the chloroform were found to be less than by other methods.

Berliner klinische Wochenschrift.

26 (XLII, No. 2, January 9.) *Beobachtungen während der diesjährigen Cholera-Epidemie in Sudrussland und russisch Mittel-Asien. M. Hahn.
27 *Ueber Untersuchungen an Kindern in Rücksicht auf die v. Behring'sche Tuberkulose-Infektions-Theorie (examinations of children). H. Beitzke.
28 Ueber aplastische lymphatische Leukämie und über Stillstand (remission) bei Leukämie. A. Wolff.
29 Beitrag zur Lehre von den Funktionen des Ohr-Labyrinths. Passow. (Concluded.)
30 *Internal Treatment of Catarrh of the Bladder.—Zur innern Behandlung des Blasenkatarrhs; Urotropin und dessen Ersatzmittel. C. Posner.

26. **Recent Cholera Epidemic in Southern Russia and in Persia.**—Hahn spent his last vacation in these regions, and made a special study of the conditions in regard to the prevailing cholera epidemic. On account of the superstitions of the lower classes, religious prejudices, the tendency to shift the blame on other shoulders and the lack of any positively established successful results elsewhere, except possibly Murata's experiences in 1903, Hahn felt constrained to advise against prophylactic inoculation with anticholera serum on a large scale. In army circles, among physicians and attendants on the sick, he regards it as indispensable, and as liable to aid in promoting the knowledge of the serumtherapy of cholera. In 3 extremely severe cases the patients recovered after subcutaneous infusion of alcohol in salt solution, 200 c.c. alcohol to 800 c.c. of the physiologic salt solution. He injected from 5-2,000 c.c. in 500 c.c. doses, a total of 1-400 c.c. alcohol. The importance of prophylactic washing of the hands after defecation should be impressed on all, and children should be trained to do this. Privies and closets should be built to allow immediate washing of the hands, preferably with a towel dampened with a bichlorid solution in times of epidemics. He urges others to try the alcohol infusions according to his technic—he has never witnessed such rapid recovery in such severe cases under any other method of treatment.

27. **Tubercle Bacilli in Children's Cadavers.**—Beitzke found evidences of tuberculosis in 40 among 138 cadavers of children examined at the Berlin Pathologic Institute during the last eight months. Only 48 of the other cadavers were in a condition to be used for these researches. With a single exception not the slightest evidence of the presence of tubercle bacilli in the blood could be detected in any of this last group.

30. **Internal Treatment of Catarrh of the Bladder.**—Posner attributes to the varying nature of the infectious agent the varying efficiency of hexamethylentetramin in internal treatment of vesical catarrh. It is generally effective, but occasionally fails completely. When the infection is of a tuberculous or gonorrheal nature, this drug is almost certain to fail, and this is an aid in differentiating such processes. Success can almost be counted on when the infection is due to the staphylococcus, streptococcus or colon bacillus.

Centralblatt für Chirurgie, Leipsic.

31 (XXXII, No. 4, January 28.) *Anastomosis Between Stomach and Esophagus.—Die Anastomose zwischen Magen und Speiseröhre und die Resektion des Brustabschnittes der Speiseröhre. Sauerbruch.

31. **Resection of Cervical Portion of Esophagus.**—Sauerbruch relates that at first no better results were attained in operations on the esophagus in the pneumatic operating chamber than outside. (See THE JOURNAL, pages 1181 and 1424 of the last volume.) The last three months have witnessed a decided change for the better, and none of the 11 dogs thus operated on has died. All are lively, although as much as 7 cm. of the esophagus was resected in some instances. The factors for successful anastomosis between the stomach and esophagus are the use of the Murphy button, instead of a suture, and the adoption of some method of causing rapid formation of adhesions. An incision is made in the fifth interspace, the ribs are spread apart and the lung is pushed back with sponges until the aorta, esophagus and both vagi become visible. The esophagus is freed from its attachments and the stomach drawn up through the diaphragm. An assistant outside the pneumatic chamber introduces one-half of the Murphy button into the esophagus, and pushes it along until the operator inside the cabinet can feel and grasp it with his fingers through the stomach wall. He then pushes it up into the protruding part of the stomach, where it is reached by a small incision and its upper part allowed to protrude. The other half of the button is then introduced in the same way from without the cabinet, and part allowed to protrude through a small incision in the wall of the esophagus. It is not necessary to tie the buttons in place, as the wall clings around their neck and no suture is required. It is a very simple matter then to lock the two halves of the button together and the anastomosis is complete, without the slightest traction on the esophagus or adjacent organs. The diaphragm is then sutured, after making sure that its movements do not pull on the anastomosis. This suture, the anastomosis and finally the pleura are dabbed with compound solution of iodin to promote the formation of adhesions; the pleural cavity is rinsed and the skin sutured. This operation has been done on 13 dogs. All are lively to date except 3, who died suddenly, after jumping. It was found that death was due to defective suture of the diaphragm around the anastomosed part of the stomach. The sutures had given away as the animals jumped, and the stomach had crowded through the opening, compressing the heart. It is possible in dogs to draw up the stomach so far as to make an anastomosis between the stomach and the upper third of the esophagus. Resection of the esophagus after the anastomosis is complete is done by cutting it and ligating both stumps. The lower stump is treated like the stump of the appendix, and the upper stump is drawn down and sutured to the peak of the stomach, near the anastomosis, so that the union is doubly secured. One dog has been killed out of the 11 thus operated on, and it was found that the peak of the stomach had changed into a kind of long-drawn-out tube, which can be regarded as a kind of esophagus. A still simpler method of anastomosis is to push the lower part of the esophagus into the stomach wall, like the finger of a glove. The stomach wall rides up around it and is sutured in this position. The diaphragm is then sutured to the protruding peak of stomach. Two weeks later the stomach is opened by a laparotomy and the tip of the invaginated portion of the esophagus is cut off. This is the ideal method of excluding small circumscribed tumors of the cardia or of the lower portion of the esophagus. Experiments on the cadaver have established the fact that conditions for these operations are fully as favorable in man as in animals, and clinical experiences with 3 cases have shown that the vagi can readily be isolated, and that the fourth or fifth interspace allows ample access.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 665.

32 (XXIX, No. 4, January 28.) Fall von Tetania gravidarum. K. Schmidlechner.
32½ Ein neues Spekulum zur Scheiden-Dammnaht (suture of vagina and perineum). R. B. Keyserlingk.

Centralblatt f. d. Grenzgebiete der Med. u. Chir., Jena.

Last indexed XLII, page 1093.

33 (VII, No. 16.) *Operations on Tendons.—Ueber Verwendung von Sehnenoperationen. G. Muskat. Critical review of the literature.
34 (No. 17.) *Ueber tabische Osteo-Arthropathien der Wirbelsäule (of spine). K. Frank. (Commenced in No. 15.)
35 *Die chirurgische Behandlung der Magen-Dilatation (of stomach). D. G. Zesas. Critical review of the literature.
36 (No. 19.) *Indikationen zur chirurgischen Behandlung der Cholelithiasis. O. Heusler. Critical review of the literature. (Commenced in No. 18.)
37 (No. 20.) Die Aetiologie der Cystitis. K. Ritter von Hofmann. Critical review of the literature. 121 articles.

Gazzetta degli Ospedali, Milan.

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57 (XXV, No. 131, November 1.) Physico-Chemistry in Its Relation to Clinical Medicine. Ceconi (Turin).
58-60 (No. 134.) *Report of Italian Congress of Internal Medicine, Rome, Oct. 24 27, 1904. (Continued.)
61 (No. 133.) Sul decorso della pseudo-tubercolosi per ingestione del *bacillo opale agliaceo nelle cavie di pochi giorni* (experimental research on young guinea-pigs). L. Vincenzi.
62 Sull' ematemesi nei morbi splenici. G. Cabibbe.
63 Sull' importanza dell' esame oftalmoscopico nei traumi della scatola cranica (ophthalmoscopy in injuries of skull). A. Carbone.
64 Enlarged Spleen in Typhoid, Etc.—Il tumore di milza nell'ileotifo e nella subcontinua malarica. T. Rodini.
65 Del parto forzato nell' eclampsia. E. Curti.
66 Le iniezioni dei sali mercuriali nelle tubercolosi chirurgische (negative action of salts of mercury). E. Curti.
67 *Di alcuni casi di dissenteria e della loro cura col creosoto.* G. Zanardini.
68 (No. 136.) Sopra le alterazioni cardio-polmonari che si riscontrani nella cifoscoliosi (kyphoscoliosis). A. Pisani.
69 Cheratoma plantare e bilaterale ereditario. M. Costanzo.
70 *Action of Muscle Plasm of Immunized Animals, Etc.—Azione del plasma muscolare di animali sani ed immunizzati sul bacillo di Koch. R. B. Pallieri.
71 Adrenalina. E. Bosurgi.
72 (No. 139.) *Fenomeni cardiaci nella malaria. P. Gallenga (Baccelli's clinic, Rome).
73 *Carattere e significato clinico della bozza pilorica (bulging of pyloric region). S. Mircoli.
74 (No. 139.) Anestesia locale adrenalin-cocainica. G. Gualdrini.
75 (No. 142.) Ricerche sul potere agglutinante, emolitico e tossico del siero di sangue nell' anchilostomanemia. D. Romani.
76 **Opoterapia gastrica.* U. Baccarani (Galvagni's clinic, Modena).
77 Defensive Action of Antiserum in Acute Experimental Tuberculosis.—Infezione tubercolare acutissima ed azione difensiva del siero. E. Marzagalli.
78 Two way Tip Attachment for Bladder Irrigation with Permanent Syringe.—Di uno strumento da applicarsi alla siringa a permanenza per fare le lavande vescicali a doppia corrente. G. Baroni (Arezzo).

59. Studies of Infants Fed with Milk from Immunized Cows.—Jemma reports that the serum of healthy infants of sound parents does not agglutinate the tubercle bacillus even at a dilution of 1 to 1. If the parents are tuberculous a very weak agglutination is exceptionally observed. Healthy infants fea for several months with milk from immunized cows, acquire the agglutinating property, usually for dilutions of 1 to 5, but occasionally of 1 to 10. Infants of tuberculous parents, under the same conditions, acquire an agglutinating property of 1 to 10 or 1 to 20. This property is gradually lost after suspension of the milk, persisting highest and longest in the children of tuberculous parents.

60. New Research on the Protecting Functions of the Omentum.—Cioffi's experiments have established the remarkable protecting action of the omentum. It rapidly encloses an organ or part of an organ tied off, and displays both antitoxic and other functions. The circulation is soon re-established through the parts and no damage results from the intervention. He here reports that a silk ligature thrown around the large intestine of rabbits so as to arrest the circulation was found inside the intestine in five or six days in 10 out of his 15 experiments. The peritoneum clings to the injured loop, adhesions form, and by the time the silk has made its way through the walls of the intestine, the adhesions have closed its path behind it so that no fecal matter escapes from the intestine. The sheet of the peritoneum is the first to become organized, with intense local hyperleucocytosis, while the crowds of leucocytes attracted to the submucous connective tissue combine with those of the peritoneum to form a tissue that repairs the breach.

70. Bactericidal Action of Muscle Plasm from Immunized Animals.—Pallieri describes a number of experiments which demonstrated that the muscle plasm of animals artificially immunized against tuberculosis possessed bactericidal and antitoxic properties in respect to the tubercle bacillus. The research was conducted at Maragliano's Institute for Infectious Diseases at Genoa.

72. Heart Symptoms in Malaria.—Gallenga emphasizes the necessity for suitable treatment of the heart symptoms accompanying some cases of malaria. A malarial patient who presents heart symptoms such as he describes should be regarded and treated as if he were just recovering from endocarditis. The quinin should be given cautiously in such cases, avoiding large doses and too short intervals. He advises giving not more than from 2 to 3 gm. in twenty-four hours, and this amount may be given hypodermically in doses of .5 gm. every three hours. The effect is as good as with larger doses, while it is less dangerous. Digitalis and other heart tonics are given as indicated. The 3 typical cases suggested the onset of an acute infectious endocarditis or myocarditis. None of the classic symptoms were wanting; the malarial infection must have had an elective and intense action on the heart, especially on the contractile function of the myocardium, as evidenced by the dilatation of the ventricles, functional mitral incompetency and threatened heart failure. The malarial infection was mild and soon yielded to quinin, but the heart symptoms persisted for some time longer, but finally subsided. In other cases the heart symptoms were less serious, but the malarial infection proved less tractable.

73. Bulging of Pyloric Region.—Mircoli applies the term of pyloric bulging to the condition in which the fasting stomach bulges out in the epigastrium, or its margin is lower than normal, below the level of any other part of the greater curvature. It may occur with or without pain or lesions in the stomach, and may be transient or permanent. This bulging of the pyloric region may be the initial sign of incipient gastrectasia. In 10 cases this bulging of the pyloric region was the only appreciable sign of any stomach trouble, and the patients complained merely of neurasthenic symptoms. They were all persons obliged to bend over at work or exposed to great heat, cooks, bookkeepers, or else were in the habit of always sleeping on the right side. In 2 cases of biliary or lead colic the bulging was marked during the paroxysms, but subsided later. In another group of patients with heart disease the bulging was accompanied by subjective disturbances. In the cases of liver affections the bulging was particularly prominent, as also in some cases of malaria.

76. Natural Gastric Juice in Dyspepsia.—Baccarani has been using in the clinic the gastric juice obtained by a Pawlow fistula from pigs. He found that in the majority of cases the gastric juice effected a prompt and complete cure and that notable improvement occurred in cases in which the gastric disturbances were due to hysteria or neurasthenia, or to nervous anomalies of any kind. The benefits obtained persisted long after suspension of the treatment, the intestinal functions also returning to normal. Great benefit was also derived in cases of gastrointestinal atony, accompanied by hypoacidity or catarrh. The patients with more serious gastric disturbances were not benefited to the same extent as those of the above two categories.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A Handbook on the Prevention of Tuberculosis. Being the First Annual Report of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York. Paper. Pp. 388. Published by the Charity Organization Society, New York City. 1903.

Studies in General Physiology. By Jacques Loeb, Professor of Physiology in the University of California. The Decennial Publications. Second Series. *Vol. XV. Parts* 1 and 2. Cloth. Pp. 782. Price, $7.50 net. Chicago: The University of Chicago Press. 1905.

First Annual Report of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis. Feb. 1, 1903, to Feb. 1, 1904. Paper. Pp. 265. Published by the Henry Phipps Institute, 238 Pine St., Philadelphia. 1905.

The Cause and Prevention of Consumption. A Preventable and Curable Disease. Circular Issued by the Illinois State Board of Health, 1904-5. Fourth Revised Edition. Pp. 26.

Notes for the Guidance of Authors in the Submission of Manuscripts to Publishers. Paper. Pp. 66. Price, 25 cents. New York: The Macmillan Co. 1905.

Twenty-First Annual Report of the Kensington Hospital for Women. From Oct. 12, 1903, to Oct. 3, 1904. Paper. Pp. 31.

Politics in New Zealand. Paper. Price, 25 cents. Published by C. F. Taylor, M.D., 1520 Chestnut St., Philadelphia.

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Original Articles.

THE USE OF FOOD PRESERVATIVES.[*]

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Inasmuch as the succession of seasons, the intervals between harvests and great distances from sources of supply compel man to store and transport many food products, and since these are more or less perishable, the desirability and the necessity of artificially preserving these foods from decay and from putrefaction are apparent; and certain agents have been used for this purpose from prehistoric times. Common salt, or sodium chlorid, has priority in point of time, and potassium nitrate, or saltpeter, has the sanction of long-continued use, although I am not sure that the unrestricted use of the latter is altogether free from harm. Primitive man, in all probability, learned from observation that meat exposed to the smoke of his campfire did not become putrid so quickly as meat not so treated. Sterilization and canning are of comparatively recent introduction, but now of wide application. Refrigeration finds frequent new adaptations and the machinery employed in securing it has been developed and improved from year to year.

The relatively new science of bacteriology has demonstrated that the processes of decay and of putrefaction are due to the growth and multiplication of low forms of life and that the preservation of foods depends on the exclusion or retardation of the growth of bacteria. The rapid development of chemistry has led to the discovery and inexpensive preparation of a long list of chemical bodies possessed of more or less powerful germicidal properties, and the purveyors of food products have not been slow to utilize these scientific discoveries. Some of these chemicals used in the preservation of foods are, to say the least, questionable in their effects on the life and health of the food consumer. This fact has induced sanitarians to invoke the passage of legal enactments to control and to regulate their employment, and many of the states of the Union now have what are known as pure food laws and have provided officials whose function it is to enforce them. Courts of justice, in the execution of these laws, frequently call in medical men who have given especial attention to these matters and ask from them information concerning the harmfulness or harmlessness of the chemical compounds employed by dealers in foods. In this way it has happened that medical men are frequently asked to serve as experts in deciding questions involved in the administration of the pure food laws. From his knowledge of the human body in health and disease, and of the effects of various chemical compounds on physiologic processes, the medical man is supposed to be qualified above others in giving testimony along these lines.

The questions that may arise legitimately in trials for the violation of the pure food laws are many and varied. In part they are chemical, inasmuch as the nature of the compound employed and the various reactions into which it may enter, when brought into contact with the fluids and tissues of the body, must be comprehended and explained to a jury made up of men who, as a rule, have had no training in chemical science. In part the questions are bacteriologic, for it must be known whether or not the substance has any germicidal properties and, if it has, if it acts on all bacteria alike. Is it effective to the same extent on aërobic and anaërobic germs, and on the relatively harmless and the toxicogenic? Much hinges on this question, as I will attempt to show later. The questions likely to come up also involve physiologic and pathologic knowledge. Food preservatives, if largely used, will be consumed not only by the healthy and robust, but by those with every form of disease, both acute and chronic. The dyspeptic, the neurotic, the diabetic, the nephritic, as well as the healthy man, must be considered in deciding whether or not a given chemical compound should be permitted as a food preservative. The infant and the aged, as well as those in the prime of life, are involved. If formaldehyd is to be permitted as a milk preservative it must be remembered that it will be largely consumed by infants, and not only by healthy infants, but by those suffering from gastrointestinal disturbances; by the dyspeptic and rachitic as well as the vigorous. If salicylic acid is to be used as a beer preservative, it must be borne in mind that it will be consumed not only by the man who takes an occasional glass, but also by the one who is given to frequent and deep potations. The food preservative that receives legal sanction must be harmful to none of these, for it is the duty of the state to protect all alike, and because a man is killing himself by excessive beer drinking is no reason why his death should be hastened by the addition of salicylic acid to his favorite drink.

One question which the expert should always ask himself, even if it be overlooked by both prosecution and defense, may be stated as follows: Is the substance in question a real preservative or only apparently such? If this question could be scientifically answered it would at once settle the claims of a considerable number of the preparations now in use. A true food preservative is a substance which when added to food in the fresh state keeps it in a wholesome condition for a considerable period of time. This is true of common salt, saltpeter, and of certain constituents of wood smoke. It is too much to expect that preserved food shall be as toothsome, as easily digested and as easily assimilated as the same food in the fresh state, and although this is accomplished with certain foods and with certain preservatives it can hardly be expected in all cases. Bacon is believed to be fully as pleasing to the taste, more easily digested and quite as readily assimilated as fresh pork, but this is not true of corned beef, nor of preserved fruits and vegetables.

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[*] Read before the Pathological Society of Philadelphia, 1904.

A true food preservative must keep the substance to which it is added in a wholesome condition, so that it can be consumed by persons in every physical condition of life without impairment of health or danger to life. It is not the function of a food preservative to impart to the food a deceptive appearance and to make it look better than it actually is. The law takes special cognizance of this point, and plainly forbids all articles of this class, and I am sure that this law is wise. This excludes all meat preservatives that restore the color and fresh appearance to partially decomposed meats. Moreover, it is not the function of a true food preservative to simply preserve the fresh appearance while putrefactive changes go on, at least without marked and sufficient hindrance. To prevent the development of those bacteria that produce odoriferous substances while the more toxic bacteria that develop no telltale odor continue to grow and multiply does not comply with the requirements demanded by a food preservative that asks for legal sanction. It follows from this that we should be informed not only in a general way concerning the antiseptic properties of the substances in question, but we must know something of its specific action on toxicogenic as well as non-toxicogenic bacteria. To retard the multiplication of the lactic acid bacillus and thus to prevent the souring of milk, while colon bacilli continue to multiply uninterruptedly, is not the function of a true food preservative. Such food preservatives are wisely condemned by legal enactment. They take down the danger signal but do not remove the obstruction in the road.

Some esthetic individual might contend that the red lights along the street do not look well on a dark night, so he removes the lanterns, but leaves the stone piles and open ditches to wreck vehicles and endanger lives. Should such a man be considered a benefactor to his race, or a dangerous lunatic?

From experiments made in my laboratory, I can state that the addition of formaldehyd to milk in quantities varying from 1:25,000 to 1:50,000 retards the growth of the lactic acid bacillus and thus delays the souring of milk, while it has but little effect on the multiplication of colon and typhoid bacilli. The most ignorant mother knows enough not to give her babe sour milk, but even the most intelligent mother might give the formaldehyd milk, laden with its poison-producing bacteria, because, so far as she can judge by appearance and taste, it is all right. The man who adds formaldehyd to his milk takes down the danger signal but does not remove the danger. Is he a philanthropist or is he guilty of manslaughter when the child fed on this milk dies? In cases of this kind, it matters not whether the preservative is directly, and in and of itself, harmful to the human body or not, its use should be prohibited. I am by no means sure that formaldehyd in the quantities in which it is used in milk is, in and of itself, of great harm to the body of man, but I am convinced that its use in milk, especially in that fed to infants, is very properly condemned by the laws of many states. Bacteriologists have found that sodium sulphite is possessed of but feeble germicidal properties, and yet we know that practically it does preserve the color and delay the development of putrefactive odors in meat for a relatively long time. It is more than probable that a careful investigation of this apparent contradiction will show that this substance, like formaldehyd, retards the growth of the non-toxicogenic rather than of the toxicogenic bacteria. However, this point deserves patient and prolonged investigation, and the laboratories of our agricultural colleges might carry out many series of experiments along this line, varying the conditions from time to time, taking into consideration the character of the food employed, the species of bacteria present, the temperature, time, etc. There is opportunity here for research that may prove not only instructive but of practical value.

So-called preservatives that remove the danger signal and leave the danger untouched should be condemned whether it can be shown that the substance employed is a poison or not. Even the most inert body belonging to this class should not be used, and certainly not in food fed to children, so large a proportion of whom die from milk poisoning.

Inquiry into the effect of the substance in question on the digestive fluids and processes is legitimate in considering the claims of any food preservative, and in making this inquiry it must not be forgotten that the preservative, if permitted, will be taken by those with every degree of digestive impairment as well as by the most vigorous. Neutralization of the free hydrochloric acid of the gastric juice is a matter of no little importance, as every physician who has made many analyses of gastric contents can appreciate, and the action of the substance on the digestive enzymes is probably of still greater importance. The digestive organs are the laboratories in which the nutritive parts of the food are fitted for absorption and assimilation; and interference with the normal processes of the alimentary canal mean, sooner or later, disaster to every organ of the body. The most general and superficial knowledge of chemistry suffices to indicate that sodium sulphite will neutralize the free hydrochloric acid of the stomach, and a simple calculation, based on the amount of this substance which may be found in the food, will show the volume of acid that may be neutralized. It matters not whether the acid radicle of the sodium sulphite is split off in the stomach as the anhydrid or immediately combines with water to form sulphurous acid, the effect is practically the same. I was somewhat startled recently, however, to learn from the testimony of an expert that the stomach is a tank always filled with free oxygen, and that this immediately converts the sodium sulphite into sodium sulphate, which, as all must admit, in the quantity employed can be of little effect even on the dyspeptic. The investigation of the effects of preservatives on the digestive processes should be made outside the body, where they can be exactly determined. They should be made with each ferment and then with combinations. Numerous studies of this kind have been made with some food preservatives, for instance with formaldehyd, and it seems to be well established that this substance markedly interferes with the action of some of the digestive enzymes. The defense frequently attempts to belittle testimony showing the retardation of the digestive processes by the substance in question, and the expert is asked what harm it will do to have some of the acid of the gastric juice neutralized by the little sodium sulphite in a Hamburg steak eaten once a week? This question is an attempt to mislead and to convey to the jury the impression that the matter is of but trifling import and that the expert is trying to build a fortress of straws. However, if a man has sodium sulphite in his meat, alum in his bread, and formaldehyd in his milk, it may seriously be questioned if his gastric juice, or what little he has left of it, will suffice to convert the proteids of his food into peptones.

The question of the possible poisonous action of the preservative must always be considered and is frequently of primary importance. There seems to be great diversity of opinion among medical men concerning what constitutes a poison. Some appear to think that before a chemical compound can be classified as a poison it must be capable of causing death in the quantities used in food, or that at least it must visibly and grossly disturb the health of man in a few hours. If it fails to do this it is not a poison, or at least in the quantity employed it should not be so designated. I have regarded this question quite differently and I will attempt to give, in a few words, my ideas on this point. The bodies of animals, including man, are made up of cells, that are alive and perform duties, the proper performance of which is necessary to the well-being of the whole of the individual. These cells are essentially chemical compounds and those substances which combine with these cells chemically in such a way as to cause their destruction or to render the performance of their normal functions impossible are poisons. Therefore, a poison may be defined as a substance that destroys or impairs cell function by virtue of its chemical constitution. The cells of the different organs vary more or less in chemical composition and consequently a compound may react with a liver cell more readily than it does with a muscle, bone, or nerve cell. In this way poisons are, to a certain extent, selective in their effects, their selective action being dependent on the readiness with which they react with the chemical constituents of different cells. A substance that combines with and consequently interrupts the function of the cells of the respiratory center in the brain causes the speedy death of the individual, while those substances that destroy blood, liver or kidney cells are slow poisons inasmuch as the life of the individual may survive the destruction of a large number of these cells, but those of one class are just as truly poisons as those of the other. Potassium chlorate reacts with the hemoglobin of the blood, converting it into methemoglobin, and if the number of red blood cells destroyed is sufficiently great to impair the action of the other cells, especially those in the vital centers of the brain, death of the individual occurs. On the other hand, if the number of injured blood cells be not so great, life is not destroyed but health is impaired.

Chloroform, ether and other anesthetics combine with and temporarily paralyze the nerves of sensation. Ethyl alcohol, besides its effects on the nervous system, leads to alterations in hepatic cells, and cirrhotic changes are induced; while methyl alcohol finds its special affinities in the ganglion centers of the retina and in the optic nerve. Many of the metals have their most marked effect on the renal cells and some have a special action, apparently, on connective tissue cells. In the pathologic laboratory, potassium bichromate is employed on animals for the specific purpose of developing nephritis. There are other illustrations, but these, I hope, will suffice to make clear my position. All poisons are such because they destroy or impair the action of certain cells of the body and the immediate effect on the life of the individual depends on the kind and number of cells put out of commission.

The question of dose can not be left out of consideration in the study of poisons, because a certain relatively small number of cells, in most organs of the body at least, can be destroyed without any appreciable result. Moreover, the quantity or dose given determines, to some extent, the cells affected; thus the introduction of from 5 to 10 grams of sodium sulphite into the stomach of a rabbit at one dose causes death in a few minutes, while the administration of the same substance in much smaller quantities just as certainly kills but a longer time is required. When a large single dose is given, some of the unchanged sulphite reaches the brain, and the cells of the respiratory center are so injured that respiration stops and death occurs almost instantaneously.

When smaller doses are given all the sulphite is used up before it reaches the brain, especially in the walls of the stomach and in the blood. Digestion and assimilation are impaired, emaciation follows and in time death ends the process. Is not sodium sulphite just as truly a poison in one case as in the other? But it is asked, is not nearly everything a poison if given in sufficient quantity? and the expert is frequently asked if common salt is not a poison in large doses; it may kill, but it is not a poison. The injection of concentrated solutions of salt or of sugar, or even of distilled water directly into the blood may kill by altering the specific gravity of the plasma, but these are not poisons. If the stomach of a rabbit is filled with a saturated solution of common salt speedy death results, but this is due to physical causes and to the absorption of water, and is not due to the chemical combination of salt with the cells of the body. Broken glass or splinters of steel taken into the stomach may kill the individual, and molten metal poured into the throat would have a like effect, but these are not poisons, because their injurious effects are due to physical and not to chemical causes.

Should the fact that a substance is a poison prohibit its use as a food preservative? Admit that a substance is a poison and it must also be admitted that its use as a food, or in a food, must be sanctioned by long-continued custom or must be regulated by law. I think that this is the holding of eminent jurists in all parts of the civilized world. I believe that the higher courts of Pennsylvania have held that it is sufficient to show that the substance is a poison and that it is not necessary to show that the quantities employed are dangerous, and this decision is certainly a wise one. In cases of trial for murder by the administration of poison, it has been generally held that it is not necessary for the chemist to recover from the body a poisonous dose, but simply to show the presence of poison. People in general are not legally qualified to administer poison to others. Members of the medical profession only are legally qualified for this purpose, and it is for this reason, in part at least, that the state assumes the right to specify within certain limits the qualifications of the physician.

If sodium sulphite is a poison, and if the only safeguard in its use as a food preservative is in the amount added to the food, shall this be left to the vendor, who is ignorant of the chemistry and toxicology of the compound and whose sole object is to make his goods look more attractive to the buyer? If this compound is to be legally sanctioned as a food preservative, the law must determine in what quantities it may be employed and it must select qualified men to mix the preservative with the food. The statutes specify the qualifications of the physician who prescribes and of the pharmacist who prepares this and other poisons when given as medicines, and is it not of more importance that the addition of poisons to our daily foods should be conducted under similar safeguards? Medical experts may differ in opinion concerning the classification of a given compound as a poison, but if the court be convinced that it is a poison, and that the possibility of doing harm with it depends on dosage, it is not probable that its usage will receive legal sanction. Poisons should be sold only under strict legal restrictions; the experience of all ages has demonstrated the wisdom of this. The cases of poisoning with chromate of lead, so admirably worked up some years ago by Stewart of Philadelphia, will illustrate what harm the cupidity of the vendor and the ignorance of the user may accomplish. The fact that the substance in question has been largely employed in medicine, and sometimes with beneficial results, is often brought out in court. In my opinion, testimony of this kind is of but little value and is capable of being misinterpreted. The physician, in order to cure a syphilitic lesion, very properly takes the risk of doing harm to the kidneys by the administration of mercury, but this does not indicate that mercurial compounds are harmless or that they may properly be used as food preservatives. This point leads to such absurdities that I am ashamed to pursue it further, and yet in two cases tried in Pennsylvania recently medical men have used it in defense of food preservatives. Along the same line is the question of poisonous dose, and the expert finds in some medical book that the medicinal dose is much greater than the amount one would take at a meal, or in one day, or possibly in one week. In regard to this point, it is only necessary to state that there is probably no poisonous drug that has been in use for 10 years or longer for which you can not find in some book the medicinal dose given at a figure considerably beyond the limit of safety.

There is another line of testimony sometimes given that seems to me to be of questionable value; an expert testifies that foods containing a certain preservative have been eaten by men in Alaska or in some other place remote from sources of food supply without recognizable harm. Men so situated must eat what they can get; but here at home we are not driven to such a choice. Men in remote places have eaten dogs and have pronounced the repast enjoyable, palatable and nutritious, but this would hardly justify a butcher in sending a canine tenderloin when a beefsteak had been ordered.

The source of one's knowledge concerning the action of poisons is a matter deserving consideration. Lately there has been a tendency on the part of some to question toxicologic knowledge gained by animal experimentation and to offer instead observations of the effects on man. One expert has tested the action of a substance on the lower animals, which he has fed for a certain time and which he has then killed, either by the continued administration of the drug or otherwise, and after death he has made careful macroscopic and microscopic studies of the different organs. From these studies, he has arrived at certain conclusions. The opposing expert states that he has prescribed the substance in question for malaria or for some other disease to a large number of people and without injury, possibly with benefit. Which kind of testimony is the more scientific and valuable? We will suppose that the action of potassium bichromate is in question. I take this substance because it has not, so far as I know, been used as a food preservative, although a more poisonous chromate, that of lead, has been employed in Philadelphia as a food adulterant. One man testifies that, following the method of Gunzberg, he has prescribed the bichromate to his syphilitic patients and that it has done them no harm. Another says that he has tested the action of this substance on dogs and that he finds it induces certain distinct lesions, especially in the kidneys. Which line of evidence is the more satisfactory, and, after hearing both, to which shall we give the greater weight in coming to a conclusion concerning the action of the bichromate? For one, I should not long hesitate in coming to a decision, and I leave others to decide for themselves, but while they are doing so I beg leave to ask a few questions. Which, the syphilitic or the dog, was in health to start with? To which has the substance been administered most certainly in the quantities claimed? Which has been more completely under the control and observation of the administrator? and, when both die, in which is the cause of death most unquestionable? Moreover, suppose that the kidney lesions are found in both, is it not true that there might be grave and honest doubt as to what caused them in the man? The conditions under which most patients live are too complex for them to serve in our observations concerning the actions of poisons. Dr. Wiley, at Washington, is now testing the action of certain food preservatives and adulterants on men, and, inasmuch as these men are under his control and have their lives regulated by his rules, we may be sure that valuable information will be secured, but toxicologic experiments on men under the most favorable conditions will need to be supplemented by animal experiments. The microscopic lesions induced in the organs can be ascertained in no other way. We must be able to kill the animals after they have received definite quantities of the substance and to study their tissues, both macroscopically and microscopically.

In conclusion, I will state what I believe should be the essentials of a substance before its employment as a food preservative should receive legal sanction.

1. It must be a real preservative, keeping the food in a wholesome condition and not merely retaining the appearance of freshness while bacterial changes continue.
2. In the largest quantities used, it must not materially impair any of the digestive processes.
3. It must not be a cell poison, or if a cell poison in any amount, it must be added to foods only by persons qualified by special training and officially authorized, and foods containing these substances must be plainly labeled and the kind and amount of the preservative used must be made known not only to the buyer but to each consumer.

To Prevent the Tramp Evil.—A striking illustration of the success of the work test on ridding country towns of tramps is furnished by the town of Sherborn, Mass., says the *Medical Times*. Sherborn had 1,446 inhabitants, and during one year it lodged and fed at the town almshouse 1,844 tramps. The overseers of the poor decided to employ tramps in labor for the almshouse and in chopping wood, with the result that in four years there was a reduction from 1,844 to 31.

THE EFFECTS OF GONORRHEA ON THE FEMALE GENERATIVE ORGANS.*

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The effect of gonorrhea on the female generative organs has been so destructive that no successful contradiction is feared when the belief is expressed that no disease in modern times has caused so much indirect mortality, mutilation and suffering, both mental and physical, as gonorrhea; and this association can hardly spend its time and influence in any more valuable and humanitarian direction, than in establishing the facts in regard to its ravages, and in suggesting methods of limiting or preventing them in future.

Acute gonococcic infection of the vulva and vagina may be compared with acute gonorrhea of the anterior portion of the urethra in the male; both are frequently cured before any ascending infection occurs, both are frequently incurable in their chronic or latent stages, when the gonococcus has found lodgment in the deeper structures.

The chief danger of gonorrhea in women is stated by all the text books on gynecology to be the infection of the uterus and of the uterine appendages. Gonorrhea is the chief source of salpingitis and pelvic peritonitis, though we occasionally meet with these conditions as a direct result of endometritis caused by puerperal sepsis, but these latter cases are now admitted by gynecologists to be the exception, while as a rule these cases are caused by the disease under consideration.

Morrow, to whom we are indebted for many statistics, states in the preface of his valuable book, on "Social Diseases and Marriage," that "within the past two decades no coccus has so grown in significance and pathogenic importance as the coccus of Neisser. Of especial interest, in connection with the objects of this study, is the important rôle of the gonococcus in determining serious pelvic disease in women. Modern science has taught us that, in view of its extensive prevalence, its conservation of virulence, after apparent cure, and its tendency to invade the uterus and adnexa, with results often dangerous to life, and with destruction of the reproductive capacity of the woman, gonorrhea overshadows syphilis in importance as a social peril."

While Morrow admits that "no disease has such a murderous influence on the offspring as syphilis," he also states that "no disease has such a destructive influence on the health and procreative function of woman, as gonorrhea."

While syphilis is a most potent factor in the destruction of the unborn child, gonorrhea by its much greater frequency is a vastly more potent factor in the production of involuntary race suicide, by the sterility induced in both sexes; but much more frequently in women, on account of the ascending destructive and incurable infection of the tubes and ovaries.

Bland-Sutton of London is correct when he states that gonorrhea is the chief cause of the sterility of the prostitute class. A gonorrheal salpingitis, whether it goes on to suppuration, and the formation of pus tubes and ovarian abscesses or not, usually destroys the epithelial lining of the tubes, and so cripples the ovary as to render conception almost impossible. Sterility is then a very common legacy bequeathed to the female victim of this disease.

The most pathetic part of the history of this subject relates to the frequent introduction of this disease into married life.

"The Report of the Committee of Seven on the Prophylaxis of Venereal Diseases in New York City would indicate," says Morrow, "that nearly 30 per cent. of all venereal infections occurring in women, in private practice in that city, are communicated by their husbands."

While venereal diseases cause more deaths and deplete the population by causing abortion and preventing conception more than any other known disease or condition, this subject is largely ignored by sanitary bureaus in their registration of contagious diseases.

And yet it is generally admitted by recent writers that gonorrhea is the most widespread and universal of all diseases. Some writers claim that 90 per cent. (the lowest estimate I have seen is 75 per cent.) of the male population of our cities have had gonorrhea some time during their lives, while only from 5 to 18 per cent. have contracted syphilis.

Noeggerath has stated that of every thousand men married in New York, eight hundred have had gonorrhea, from which the great majority of their wives have been infected. And it was largely on this evidence that he based his statements in his most remarkable and startling paper read before the American Gynecological Society in 1876 in regard to the effects of latent gonorrhea in the causation of abortion and sterility. Morrow states that his own observation at the New York Hospital, extending over a period of several years, would indicate that fully 70 per cent. of all women who come there for treatment were respectable married women who had been infected by their husbands.

This subject has been studied by so few investigators of recognized authority, in comparison with other great evils which threaten the social, moral and physical life of the nation, that I feel that the presentation of the latest crystallized views and conclusions of well-known workers and authors on genito-urinary subjects ought to arouse us and awaken our interest in this great question. The work of any real value in this department has all been done in the last twenty-five years, since the discovery of Neisser, in 1879, which made it possible for us to say that no gonorrhea existed without the presence of the gonococcus, and that gonorrhea continued to exist so long as that germ could be found in any of the deep recesses of the body.

Thus Morrow, in his great book before referred to, in comparing the significance of gonorrhea and syphilis as social dangers, says, "In the light of our present knowledge respecting the pathologic significance of gonorrhea, it is a matter of surprise that its important relations with marriage, until recent times, have been practically ignored."

He declares that gonorrhea "must be considered quite as formidable a social plague as syphilis," and again, in speaking of the murderous influence of syphilis on the offspring, says "the no less potent agency of gonorrhea as a factor of depopulation through its inhibitory influence on the conceptional capacity is by no means adequately appreciated." The introduction of gonorrhea into married life entails consequences infinitely more disastrous to the health and the life of the mother than syphilis. She may be rendered a life-long victim and her hope of children absolutely extinguis[illegible]. And a[illegible] he says, "woman h[illegible] irrevocably [illegible] not to s.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

of the danger which in many instances can only be averted by the sacrifice of her reproductive organs." We have authority for the statement that, while we are accustomed to look on syphilis as the most active cause of depopulation, gonorrhea is in reality a much more powerful factor.

Janet, in discussing "Social defense Against the Venereal Peril," only two years ago says, "gonorrhea with tuberculosis, perhaps more than tuberculosis, is the great pest of our age. If we compare, from a social point of view, the importance of gonorrhea with that of syphilis, gonorrhea is to syphilis as 100 to 1, not only from the standpoint of the number of persons attacked but also from the standpoint of the gravity of the lesions and their perpetuity. Gonorrhea modifies, in a manner often permanent, the genital organs of patients, renders them infinitely dangerous for the women they approach, causes all the metrites and annexial inflammation which today give to the surgeons three-quarters of their work, and conducts finally both men and women to sterility."

"The predominance of gonorrhea as a cause of depopulation is not surprising in view of the fact that it rimarily and specifically affects the organs of generaon"; though some writers declare that "gonorrhea is a general toxemic infection."

After giving due weight to all the generally admitted causes which prevent conception, we are forced to the conclusion of some modern writers, "that there must remain a vast contingent of sterile marriages which are caused directly and solely by gonorrheal infection."

Noeggerath, as far back as 1876, declared his belief that 50 per cent. of female sterility was caused by gonorrhea. In his paper above referred to, he reports, after very careful study of 81 women affected by gonorrhea, that 49 were absolutely sterile, and that the remaining 32 women bore only 39 children.

Neisser attributes more than 45 per cent. of sterility in women to the effects of gonorrhea. Lier-Ascher found that out of 227 women 121 were sterile because of gonorrhea. Kehren found that in 96 sterile marriages 30 per cent. were due to the absence of spermatozoa in the husband, while in 45 per cent. there were complications causd by gonorrhea.

Gruenwald, Kammera and Crolax report 53 per cent., 83 per cent. and 40 per cent. of endometritis, mesometritis and perimetritis, all of gonorrheal origin, as causes of sterility in the female, while Williams insists that 73 per cent. of all abortions are due to endometritis, presumably of gonorrheal origin. While conception is known to be quite possible during the existence of a vaginal or cervical gonorrhea, and gestation and parturition may proceed and *terminate normally*, as far as the mother is concerned, but causing 30 per cent. of the blindness in the world, because of gonorrheal ophthalmia. The way seems to be open after parturition, through slight traumatism in the endometrium, for ascent of the infection to the tubes and ovaries.

One author states it very clearly in the following words: "After accouchement the tissues of the genital organs are in a peculiar state of inhibition and of infiltration. The uterine orifices are enlarged, the mucous membrane desquamated in part, but the glandular cul-de-sacs perish and offer to the gonococcus a favorable soil for its proliferation."

We have abundant testimony that specific infection frequently ascends to the pelvic organs after parturition, when this infection only existed below the internal os uteri previous to labor. This infection may, and nearly always does, result in future sterility, so that this germ has more to its account than would be implied by the mere term sterility. Many of its social victims have proven their conceptional capacity by giving birth to one child, but remain semi-invalids ever after as a result of the ascended infection. "It thus happens," says Morrow, "that the aptitude of a gonorrheic woman for conception is often extinguished by the first pregnancy, the one child representing the sum total of her reproductive energy." The sterility of the gonorrheic woman is thus relative rather than absolute; it is, in the expressive German phrase, *"ein kind sterilität*, a one-child sterility.

The race suicide effect of gonorrhea does not end in the prevention of conception or in a one-child sterility, but has a much more powerful influence in the production of abortions than has heretofore been attributed to it.

Savage asserts that as many abortions are caused by gonorrhea as by syphilis. Noeggerath states that of 53 women known by him to be suffering from the effects of latent gonorrhea 19 aborted. Fruhinsholz found that in 101 pregnancies occurring in gonorrheic women 71 went to full time, 23 aborted and 7 were delivered prematurely. Another report of 201 pregnancies, complicated by gonorrhea, states that 161 went to full term, 36 were prematurely delivered and 4 aborted.

The causes of ectopic gestation have never been clearly set forth in our text-books, but it is claimed by recent writers on social diseases that gonorrheal salpingitis plays an important rôle in the etiology of this condition; modifications in the epithelial lining of tubes occur in mildly latent cases, which may arrest the descent of the ovum to its natural bed in the uterus, thus becoming directly responsible for the tubal pregnancy. The "mutilation" of women who suffer from gonorrheal infection of the uterine appendages is simply appalling when we consider the great and increasing number of surgical operations made necessary by their otherwise incurable infections. In 1901 this association appointed a special committee "for the collective investigation of statistics on the prominence and dangers of gonorrhea."

In answer to its question, "What is the proportion of cases of pelvic inflammation coming under your care which are attributable to gonorrheal infection?" sent to many leading gynecologists in this country and in Europe, Humiston replied that 90 per cent. of his cases were attributable *to this cause, some* of them, however, being of mixed infection. Price answered that in over 1,000 abdominal sections for pelvic inflammation 95 per cent. were attributable to gonorrhea, and that in 95 per cent. of these cases the history was reliable and clear. Pozzi and Frederick stated their experience as 75 per cent. The general average of all statistics collected was 40 per cent.

It is quite possible that the difference noted in some, by the report, may be on account of a reliance on macroscopic instead of microscopic evidence of this specific infection. The statements of patients are as unreliable as their clinical history. While the presence of the gonococcus would be affirmative, its absence or a failure to find it in the deeper located infections would not always be negative proof.

Peterson says "the more the disease is studied in women and the greater the improvement in bacteriology the higher is to be found the percentage."

We often meet the statement that more than half the abdominal operations performed in the world to-day are required on account of the infections and adhesions and pus collections due to gonorrhea, but I think we will all be surprised when the statement is forced on us that a great majority of them are from this cause; according to Humiston and Price, from 90 to 95 per cent.

Mann of Buffalo says that in his experience just about all of his "pus tube operations" are required on account of gonorrheal infections, and, as tubal infections arise from specific endometritis, he thinks it necessary for the complete cure of the patient to remove the uterus also. Many others hold this opinion. They see many dangers ahead for all women who possess a gonorrheal uterus, after infected appendages have been removed. Curettings and antiseptic irrigations, while they occasionally eradicate all the gonococci, generally do not, and relapses and contagions recur, greatly to the surprise and sometimes to the mortification of the patients, who believed themselves cured.

The great number of women operated on for the removal of gonorrheal appendages, pus collections, inflammatory adhesions, enlargement and displacement does not by any means represent the amount of invalidism and suffering caused by this infection.

In the above quoted statistics only the number actually "mutilated" by the surgeons are mentioned, and no account is taken of the large number of infected women who for various reasons are not subjected to operations and continue under the care of the family physician, dragging out a miserable existence of semi-invalidism, subject to painful or difficult menstruation, no longer able to walk freely, condemned to pass their days of suffering in a reclining position, and after years, it may be, of this suffering, worn out and desperate, apply to the surgeon, who, by the sacrifice of the uterus, tubes and ovaries, renders their existence possible by making them castrated women.

What disease have we to treat against which can be brought such an array of charges and about which so little is being done to prevent or eradicate it?

I know of no statistics of the mortality arising from gonorrheal infection of the female organs of generation, but we can obtain an approximate idea when we consider the great number of major surgical operations performed on its account, the number of abortions caused by it, and the untold number of conceptions prevented by the disastrous results of such infections.

There is little doubt in my mind that, at a most conservative estimate, half a million prostitutes are living in houses of ill-fame in our large cities and I am not sure a million would not be nearer correct; writers on this subject generally estimate as many women living lives of easy virtue outside as inside of the disreputable houses. In our country alone we have, then, a million and a half, if not twice that number, who have or are liable to have gonorrhea any day, with all the possible consequences above referred to.

The effects of the introduction of gonorrhea into married life have already been spoken of.

It is estimated that from 40,000 to 50,000 prostitutes die annually, and that their places are immediately filled by new recruits. While much of this mortality may be due to the results of dissipation and natural causes, at least 30 per cent of this mortality is due to the direct effects of gonorrhea.

It is estimated that 110,000 deaths occur annually from tuberculosis in our country, 107,000 from pneumonia and 43,000 from typhoid fever. While there are no statistical reports of investigations of the mortality due to the infections and ravages of gonorrhea on the female generative organs. I have little doubt, if it can be ascertained, that the race suicide arising, directly and indirectly, from this disease would equal the mortality of any of the three diseases mentioned, and I am not sure that it would not exceed them all combined; if we take into consideration the depopulation caused by the one-child sterility, and also the absolute sterility produced by gonorrheal inflammation of the uterus and its appendages.

It is customary to include the death of the child when comparing the maternal mortality of craniotomy with that of cesarean section. Thus, if 75 or 25 per cent. of maternal deaths occurred after craniotomy, the mortality of the operation would be stated as 175 or 125 per cent., as the case might be. So, in speaking of the mortality of the effects of gonorrhea on the female generative organs, one might on the same principle include that indefinite multitude of children which would have been born but for the inhibitory effects of the gonococcus on the female conceptional capacity.

As the subdivision of this subject assigned to me only includes the effects of gonorrhea on the female organs of generation, I am admonished that I can not include in my paper a discussion of the indefinite persistency of this infection in its latent or chronic stages, of its power of recurrence after apparent cure, of our responsibility in authorizing matrimony, and the possible remedy for all the troubles following on the trail of this, the greatest plague of our century.

PURULENT CONJUNCTIVITIS AND BLINDNESS.[*]

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No greater subject could be found for the pencil of the artist than the tragedy of the young mother who, just out of child-bed, brings into one of our city clinics her first-born infant, already blind for life through ophthalmia neonatorum, to find out what can be done for the eyes that "were so bright when it was born." The mere surface facts are dark enough without the black background which the physician also sees, the hideous cause of the affliction and the physical suffering and wreck that are impending in her own life. Because I have looked on this picture and have been compelled to crush the young mother with but a fraction of the terrible truth, I am glad to join in any effort to render less frequent the repetitions of this tragedy.

Not all purulent conjunctivitis of the newborn is caused by the gonococcus. Guerola[1] reported a series of 25 cases, in all of which he found the gonococcus, although sometimes associated with other bacteria. But most students of the subject have had quite a different experience. Alt[2] found the gonococcus in but 9 out of 14 cases. Groenouw,[3] in 100 cases of ophthalmia of the newborn, found the gonococcus in 41. He also found the pneumococcus, the white and the yellow staphylococcus, the colon bacillus, and occasionally other bacteria. Standish, in a series of 92 cases reported to the Section on Ophthalmology, found the gonococcus present in but 64. It is certain that many cases of ophthalmia neonatorum are not caused by the gonococcus. One is not justified in assuming from the presence of purulent ophthalmia in the infant a gonococcus infection.

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[*] Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Annales d'Ophth., November, 1900.

[2] Amer. Jour. of Ophth., April, 1901.

[3] Graefe's Archiv f. Ophth., vol. lii, No. 1.

But, on the other hand, nearly all the cases of such ophthalmia which cause blindness are due to this organism. Groenouw thinks that failure to discover the gonococcus by one careful examination justifies a positive favorable prognosis. Standish mentions only one case of corneal ulceration in purulent conjunctivitis not due to the gonococcus. Many bacteria can cause conjunctival inflammation in the newborn, but the danger of blindness is chiefly or wholly from this one.

The frequency with which it causes blindness can not be very closely estimated; but it is the most common cause of life-long blindness, even in this country. Various statistics seem to indicate that in continental Europe fully 30 per cent. of all cases found in schools and asylums for the blind have been brought there from the effects of this disease. No adequate statistics are available for this country, but it is here very much less frequent. Such statistics as I was able to gather a few years ago[4] seem to indicate that the proportion blind from this cause in America is probably half as great as in Europe—from 15 to 18 per cent.

But the true significance of these figures only appears when we bear in mind that blindness from this cause is almost entirely preventable. In the first place, ophthalmia neonatorum may be prevented. In the report above referred to I obtained from the rec[illegible] of the largest lying-in hospitals in Philadelphia statistics regarding 4,956 deliveries. Among these children there occurred 10 cases of ophthalmia neonatorum, and but one eye was permanently damaged. Of the above cases, only 802 were subjected to prophylactic treatment directed to the eye, other than careful cleansing. The technic employed in the cleansing of the birth canal by the different obstetricians, under whose care the deliveries took place, was not identical throughout the series. But it was good in all cases.

Noeggerath, as far back as [illegible] that 50 per cent. of female sterility was caused by [illegible] orrhea. In his paper [illegible] reports, after

Clean midwifery will greatly diminish the number of cases of blindness from ophthalmia neonatorum; still, this alone will not entirely prevent it. Special prophylactic local measures are required to disinfect the eyes in which infective material may have found lodgment. These measures should be resorted to whenever it has been found by microscopic investigation, or whenever there is much reason to suspect that the vagina harbors the gonococcus. The oldest, best-established procedure is the so-called Credé method. This is to let a single drop, or two, of a 2 per cent. solution of silver nitrate fall from a glass rod on the cornea, while the lids are held well apart, and to let this solution run thence into all parts of the conjunctival sac without any additional manipulation of the lids. Rubbing of the lids at the time probably increases the resulting irritation without adding to the efficiency of the method. Great care should be exercised not to injure the cornea.

The efficiency of the Credé method is indicated by the statistics of Leopold,[5] who reports 2,146 deliveries, with but 3 cases of purulent conjunctivitis, although by microscopic evidence 98 and by clinical evidence 200 of the women had gonorrhea. The disadvantages of the Credé method are that it causes irritation and even a sharp attack of inflammation in some eyes that would otherwise escape any inflammatory symptoms; in very rare cases it is followed by conjunctival hemorrhages which have even been fatal. It is probable that such hemorrhage only occurs in peculiarly predisposed individuals, but there seems to be nothing by which such a predisposition can be previously recognized.

On account of these disadvantages it would be an important gain if one of the less irritant silver salts could be substituted for the nitrate. The prospect of being able to do this is very promising. Numerous observers have experimented with these organic silver salts, and their reported experience seems almost uniformly favorable. Such trials should be continued, and the results observed and carefully reported; but until we have had more experience with these salts they can not be regarded with the same confidence as the 2 per cent. solution of silver nitrate.

Even when, because of the neglect or inefficiency of prophylactic measures, purulent conjunctivitis occurs, careful treatment commenced before the cornea has become visibly involved will almost invariably prevent blindness. Not invariably, for a few cases have been reported, as those by Randall,[6] Würdemann[7] and Hubbell,[8] which went on to blindness in spite of the most careful and efficient treatment. In these cases, however, some constitutional factor entered and made the corneal disease progressive in spite of the cure of the conjunctivitis. In nearly all cases early, efficient treatment will save good vision. On this account the laity and the medical profession should be thoroughly educated on the subject; and the laws adopted in some states providing for compulsory notification in all cases of inflammation about the eyes in infants are to be commended.

occur in [illegible] part of the ovum [illegible] responsible

The treatment required to prevent blindness is the frequent cleansing of the eye without injury to the cornea. The washing away of the discharge may be required every hour, or even more frequently; any sterile, non-irritant solution, such as boric acid, physiologic salt solution, weak potassium permanganate or organic silver salt solutions, may be employed.

Especial care may be required to keep clean the corneal margin where the fold of swollen conjunctiva overhangs it. This is the point at which corneal infection is most likely to occur. Cleansing must be accomplished wholly by currents of fluid, not by coarser mechanical means, and it may be supplemented by applications to the everted lids of stronger solutions of silver salts, such as silver nitrate, 4 or 5 per cent., applied not more frequently than once a day, and often at longer intervals. Protargol or argyrol, from 20 to 30 per cent., may be applied from two to six times a day; but faith must not be placed in these applications to the neglect of the frequent thorough cleansing.

For purulent conjunctivitis in the adult the most important prophylactic measure is education. More careful treatment of the disease when it has arisen may somewhat diminish the cases of blindness caused by it, but only a more general appreciation of the real dangers of gonorrhea can greatly influence the number of eyes lost by this disease. It should not be forgotten that besides wives and children, others may suffer from the disease innocently acquired. I have seen two nurses entirely blind in both eyes from this cause.

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[4] Trans. Amer. Ophth. Soc., 1898.

[5] Berliner klin. Woch., Aug. 18, 1902.

[6] Trans. Section on Ophth., A. M. A., 1903, p. 303.

[7] Annals of Ophth., January, 1896.

[8] Trans. Amer. Ophth. Soc., 1903.

As to legislation to prevent blindness from purulent conjunctivitis, two points seem worthy of attention:

First. Social conditions that favor or oppose the spread of gonorrhea are more important than any measures aimed directly at purulent conjunctivitis.

Second. Gonorrhea is a malignant contagious disease, and should be publicly recognized and dealt with as such in all its clinical manifestations.

BIRTHRATE AND DECREASE IN POPULATION AS AFFECTED BY SYPHILIS AND GONORRHEA.*

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In discussing the relation of venereal diseases to the state, there is but little to be said regarding the menace these diseases constitute to the social and financial stability of the state, or regarding their effect on the future of the race, that has not already been said. The medical profession, the most familiar with this scourge which threatens all our avenues of prosperity, has yet to be aroused to the importance which the subject demands.

We are accustomed, and rightly, to point to the great progress which with giant strides has been carrying us forward in seeking out and in preventing many of the pestilential diseases that annually decimated our population; with a justifiable pride we have asked the world to see the suffering assuaged and the lives preserved by modern methods of surgery. The laity has joined us in smiting the great white plague until we have reduced the mortality nearly one-half in the last two decades. Yet this pestilence—a greater menace to the human family, treading with stealthy step at midnight, and with prurient mean seeking to cover with the habiliment of modesty its hideous crimes of destruction of social order, and of the life of all classes of citizens, born and unborn—cries out with holy horror that the mysteries which have for ages stood in the shadow of this chaste and virtuous goddess of modesty, shall never be exposed to the light of scientific truth.

Because of the indifferent attitude of a profession, whose attention is absorbed by so many avenues of investigation, by which it is pressing forward its philanthropic missions, we are without any statistics of the actual number of cases existing at any one time, of the mortality resulting therefrom, or of the crippling of industries by the loss of time incurred by reason of the disabilities caused by these diseases, to say nothing of the social disorganization it produces.

To arouse the profession to the importance attached to this subject, and to the responsibility resting on it, as well as to devise the wisest methods of treating the subject in all its relations to the individual, the profession, the public and the state, it was recommended last year that a national meeting (call it a congress or what you please) be held, in which an effort should be made to solve the whole matter. It must be plain that a section meeting of this Association, even if the section had no other subject before it, has not the time to do this work: some of the section members have other interests in the Association to serve, subjects to discuss in other sections; hence it is impossible that they should give the time to the consideration of a subject involving such various propositions, ethical, social, professional, financial, philanthropic and legal.

To fix the attention on this subject and to secure the consideration of the individual members of the profession, we believe that a personal appeal should be made. It is probable that this could best be done through the various state boards of health. A circular letter with a leaflet for the physician to hand to his patient, with brief instructions and precautions to be observed to avoid communicating disease to others, might prove an educational force sufficient to set in motion a revolution in the profession regarding this question that would do much good. Accompanying this letter might be a few questions, the answers to be sent to their respective boards, by means of which the number of cases and other facts could be secured, which would be of great value in further attempts to stay the ravages of this plague. These questions should avoid anything that would possibly lead to the identification of the patient or which would in any way compromise the physician's relation to his patient.

The menace of these diseases to the public health and to the welfare of the nation has received the attention of the State and Provincial Boards of North America. At their annual meeting in 1903 the subject was presented setting forth the extent of the prevalence of these diseases and of the resulting destruction to health, life, social order and ultimately the stability of their respective governments. After an appreciative discussion, the following resolution presented by Dr. C. O. Probst was adopted:

> *Be It Resolved,* That a committee of three be appointed by the president to prepare a leaflet that would be acceptable to physicians to give to their patients, setting forth the precautions to be taken by one suffering from a venereal disease to prevent its communication to others, and to make such other suggestions as it may deem proper, such instructions when adopted by this conference to be recommended to state and provincial boards of health for dissemination among the medical profession, and said committee shall report at the next meeting.

The president appointed as such committee Drs. Henry D. Holton, E. W. Cooper and Charles O. Probst. This committee reported at the meeting held in Washington, D. C. They recommended that the following letter be sent to every physician in the respective states, territories and provinces represented in the conference:

> *Dear Doctor:*—The enclosed leaflet is issued in the interest of the prevention of venereal diseases. It is for you to give to each patient who consults you suffering from either gonorrhea or syphilis. It has been prepared so as to be concise and is in language to be understood by every one. This, we hope, will cause it to be read by those to whom it is handed. It will introduce the subject of prevention, thus enabling you to give your patient further information of the extent of this scourge.
>
> It is estimated that 80 per cent. of all deaths from pelvic diseases in women are due to gonorrhea. Twenty per cent. of all blindness is due to gonorrheal infection of the newborn. Fifty per cent. of all involuntarily childless marriages are caused by gonorrhea of the female organs of generation of which 45 per cent. are due to marital infection by men. In this country it is impossible to quote statistics, as they never have been gathered. The committee of fifteen estimated that there were annually 200,000 cases in New York city alone. In Prussia, where they have more reliable data, it has been stated that typhoid fever represents a yearly loss of 8,000,000 marks ($1,920,000), while the increased expenses and decreased income caused by venereal diseases amounts to 90,000,000 marks ($21,600,000) annually—an amount which ex-

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

ceeds that caused by tuberculosis. But the financial loss is of minor importance compared with the enormous social changes and consequent social misery.

In view of these startling facts, which indicate the increasing danger to our people, will you not, my dear doctor, aid your state board of health in gaining reliable statistics relative to these diseases by returning to the secretary each year the enclosed blank with every question answered?

Cases of gonorrhea observed during the year 190..: Male .... Female ...... Married ...... Single...... Number having children ...... Number without children ......

Cases of syphilis .... Male .... Female .... Married ...... Single ...... Number having children...... Number without children...... Duration of disease.........

CIRCULAR OF INFORMATION ADOPTED BY THE CONFERENCE OF STATE AND PROVINCIAL BOARDS OF HEALTH OF NORTH AMERICA.

(Issued by the State Board of Health of............)

This is handed you by reason of the exceedingly disastrous results that follow these diseases, so destructive to the health of our population that sanitarians in all countries have become seriously alarmed. A large percentage of the cases of blindness, as well as of inability to perform any of the duties of life, and death at an early date are results of these diseases.

Syphilis (or pox) is especially a disease from which innocent persons may suffer, as it usually produces sores in the mouth or on the lips, hence may be conveyed by kissing, by drinking from the same cup, or by using anything which has been put to the lips or into the mouth of one affected by the disease.

These diseases are often communicated when the patient thinks he has recovered. Hence marriages contracted at this time of the disease result in much unhappiness, and often in the death of the wife. To protect yourself and others, we earnestly advise the following:

IN THE INTEREST OF PREVENTION OF YOUR DISEASE.

What to do and what not to do, to get well and to prevent giving your disease to any other person.

Follow strictly the advice of your physician; use no other treatment.

Remember that it takes a long time to entirely recover.

Wash your hands with soap and hot water whenever you have had occasion to in any way handle the private parts.

Do not have intercourse and avoid all sexual excitement until your physician says you are completely cured.

Do not allow any person to use any cup, glass, spoon, fork or anything that you have put in your mouth.

Do not kiss any one and do not wipe the face of a child with the handkerchief you have used. Always use a separate towel.

This report was adopted and the committee directed to send to each board of health of the respective governments represented a copy of the same for the use of physicians in their jurisdictions. This committee will be pleased to receive helpful suggestions from the members of these joint sections. If after your consideration of this action you should wish to give this movement your endorsement, it would not only be appreciated by the conference, but would be a very substantial aid in prosecuting these efforts to gather information as the basis for further efforts to ameliorate and suppress these pestilential destroyers of our people.

Arrests and Excesses in Development.—Dr. Eugene S. Talbot, in the *Dental Digest*, says that through phases of the evolution of man affected by an unstable nervous system, either in parent or child or both, arrests and excesses in development (degeneracies) may occur in the face, eyes, nose, jaws, alveolar processes and teeth, and form the foundation of all pathology of these structures.

SUGGESTIONS CONCERNING THE ADMINISTRATIVE CONTROL OF VENEREAL DISEASES.*

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The absence of reliable statistics in venereal diseases is very much to be deplored, for, if we wish to approach the subject intelligently, we should know something more definite as to their prevalence. Venereal diseases should, therefore, be made reportable, without, however, giving names and addresses, and solely for statistical purposes, which will serve a useful purpose for the education of the general public.

An approximate idea of the prevalence of these diseases may be obtained by a study of army statistics. Dr. Munson[1] gives the latest admission rate per 1,000 strength as follows:

Germany	27.9	Austria-Hungary ...	61.0
Russia	36.0	United States.......	73.7
Japan	36.0	Great Britain (home statistics)	173.8
France	40.9	Great Britain (Indian statistics).....	522.3
Holland	48.1		

Mean Annual Admission Rate per 1,000 Strength for the Three Years 1890-1892 (Munson).

	Germany.	France.	Russia.	Italy.	United States.	Dutch Troops.		British Troops.	
						Home Station.	East Indies.	Home Station.	In India.
Primary and secondary syphilis.	5 5	9	13 1	13 9	16 83	14 8	47 0	101.7	175.4
All other venereal diseases.	21 8	34 9	29 9	57 4	57 96	55	408.6	101.9	262.6

It is a lamentable fact that the very countries in which the sentiment both in and out of the profession is strongly against recognizing the evil furnish the highest army rates, while in armies where some special regulations are in force preventing the spread of venereal diseases, such as weekly inspections of the men and periodical examination of the women engaged in prostitution, with compulsory isolation if such are found diseased, the rates are lowest.

The comparative amount of army and civil venereal diseases is not known, because we have no accurate statistics of the civil amount. According to Fournier, one-seventh of the population of Paris is syphilitic, and the mortality among infants born of syphilitic parents in many hospitals of that city reaches from 84 to 86 per cent. According to Dr. Weiss, there are 150,000 syphilitics in Berlin, or 12 per cent. of the inhabitants. In the city of New York the number is estimated to reach over 225,000, or 15 per cent. In Copenhagen one of every 55 young men of the age between 20 and 30 has syphilis and one in 8 has gonorrhea. Parkes of England says: "It is a question whether a large number of the young men of the upper and middle classes do not suffer in youth from some form of venereal disease. In the lower classes it is perhaps equally common."

Neisser holds that gonorrhea, with the exception of perhaps measles, is the most widespread of all diseases.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Military Hygiene, p. 823.

Other German authorities have computed that fully three-quarters of the adult male population and one-sixth or more of the adult females have contracted gonorrhea; that 80 per cent. of all deaths from diseases of the uterus and its appendages are of gonorrheal origin, while ophthalmia neonatorum contributes a contingent to our asylums for the blind estimated at from 10 to 20 per cent.—from 40 to 60 per cent. before the Credé method was instituted.

Dr. S. M. Burnett of Georgetown University believes that 15,000 of the 50,000 blind persons in the United States lost their sight from this cause, involving a financial loss to the commonwealth of seven and one-half millions annually.

The destructive effects of gonorrhea on the procreative functions have been very properly emphasized in connection with the "race suicide problem" and are certainly startling when we are told that 50 per cent. of all involuntary childless marriages are due to this cause.

The measures which have been proposed for the prevention of these diseases which affect not only the offender, but innocent wives, the offsprings and not infrequently even the medical attendant, are numerous enough, but not so easy of practical application. On the whole I believe that the remedy lies in public education, and the task, as usual, falls on the medical profession, especially the trusted family physician. The great majority of people have no knowledge of the subject simply because it is not one which lends itself to general discussion, but there is no reason why the question should not be approached from the standpoint of sexual hygiene, pure and simple. Public lecturers on the purity of man commit a serious mistake, however, when they picture the consequences of the social evil, without offering a suitable remedy.

We should make a strong plea in favor of continence and tell our young men that, while the sexual passion is very strong, it can be accelerated or delayed, excited or lowered by the influence of the will. We should assure them that sexual indulgence is not a physiologic necessity, and that nature will relieve herself by an occasional nocturnal emission; that by the cultivation of pure thought, removal of temptation, normal and mental, and especially by vigorous physical exercise, continence may not only become possible, but easy. We can hardly go astray if we follow Dr. Parkes in advising a pure young man to make his home after the age of 22 or 23 and thus secure himself both from the temptation and expenses of bachelorhood. Dr. Howard A. Kelly believes that the Christian standard is the solution of the whole problem of chastity. I quite agree with him, provided the church makes an endeavor to combine religious and social work; such an effort has recently been made in the establishment of the Everett Clark Club House, the gift of Mrs. Potter, wife of the Bishop of New York, and of her son, Lieut. Clark, U. S. A., to the members of Grace Episcopal Church, Elizabeth, N. J. The special interest of this gift lies in the fact "that it is a signal example of intelligent contribution to the needs" of the whole man, religious, physical, social and esthetic. Under one roof there are a chapel, kitchen, restaurant, dining, reading, card, committee, smoking, shuffleboard and billiard rooms, swimming tank and other baths, gymnasium, running track and bowling alleys.

With such opportunities we can, indeed, hope for a higher cultivation and moral training of the male youth in all its grades, but until these measures are attained we should not hide the evil, because "it is not a pleasant subject to talk about."

The question naturally arises, "What can and should the state do to prevent the moral, social and physical ravages of these diseases?" The sanitarian suggests that a person afflicted with a venereal disease is quite as much a menace to the public health as would be a case of smallpox or any other communicable disease, and points with emphasis to what has been accomplished in Europe in the way of official control of prostitution, as a lesser evil, by registration of brothels and their inmates, periodical inspections and the detection and cure of diseased men and women.

He will tell us, and statistics will support him, that the prevalence of venereal diseases is least where sanitary measures are most rigorously enforced.

The medical profession is by no means agreed as to the propriety of this method, mainly because such a system seems too much like a recognition of the inevitableness of the social evil and is practically an official sanction of it; others, moreover, with good reason, assert that licensing and sanitary inspection tend to produce clandestine prostitution, which has heretofore furnished the largest number of syphilitic cases. On the whole, we may conclude that health officers in this country are not prepared to advocate the Paris plan of inspection and license.

There are, however, a few things which the state should insist on:

1. The enforcement of laws or police regulations relating to houses of ill fame, soliciting in streets and enticing females under a fixed age. There is certainly no good reason why the terrible temptations which greet our young men and women on every street and in many public places should not be removed. There are times when the strictest virtue may well dread such an appeal to their passions, and, as Parke expresses it, "human nature is but too weak and needs every safeguard it can get." A well-trained police force will have no difficulty in recognizing and banishing the solicitors, both males and females, from the streets.

2. Health boards can also recommend the enactment of laws for the prevention of syphilis, acquired in an extragenital way, by regulating the profession of barbers, chiropodists and manicurists, and requiring a special examination of wet nurses, cigarmakers and glass-blowers. Apart from the real dangers from these sources the educational effect of such ordinances will be beneficial.

3. Health boards should also exert their influence toward securing adequate facilities for the treatment of indigent patients.

In northern Europe, where venereal diseases are reportable and treatment is within the reach of all classes, these diseases, according to Weiss, have greatly diminished, but here, as Bulkley puts it, "ignored through ignorance, neglected through negligence of our duty, so ostracized and outclassed, venereal diseases, through false shame, concealment, prejudice, carry on their slaughter, unhampered, unchecked and undisturbed, devastating coming generations and ruining the present one."

4. Health boards may co-operate with the profession and with the dispensaries by printing for distribution leaflets, stating the nature of the diseases, the manner in which they are contracted and the ways in which they can be transmitted to other persons, and by the encouragement of a general educational campaign in which

sexual purity, respect for women and the possibility of physiologic continence should be inculcated. The evil and far-reaching consequences of impure and unlawful gratification should be clearly pointed out; but the profession should abstain from a discussion of the individual means sometimes employed in the prevention of these diseases, as none is reliable and all are immoral.

DISCUSSION

ON THE SYMPOSIUM ON VENEREAL DISEASES.[*]

Dr. Seneca Egbert, Philadelphia, said that he thinks that the state and provincial boards of health and the American Medical Association ought to fight this great evil by beginning and carrying on a work of education; and he believes that one way in which this can be accomplished is by the preparation of some literature for the use of the physician, who is the man who comes most closely in contact both with the individual who sins and with the innocent one who suffers—as a measure of informing and educating his patients. It will be necessary for physicians to use discretion in giving out this literature, and Dr. Egbert believes that before this literature is put in the hands of the laity it ought to bear the stamp of approval and authorization of the entire American Medical Association. While there are admirable works on this subject, there has always been in the past a certain amount of hesitancy about endorsing for the laity the book of a man who writes on sexual matters. If some literature could be prepared by the committee which Dr. Holton represents, it could be presented to the people, not as coming from any particular author, but as coming from, and endorsed by, the American Medical Association. The influence of such a work would be very great, and the Association would accomplish a great work. Dr. Egbert believes that the people of this country must be made to realize the need of teaching modern hygiene in the schools. This should include hygiene in relation to personal, household and municipal matters, such as the purification of water supplies, the means of disseminating infectious diseases, the necessity for and principles of ventilation, the disposal of waste matters, influence of occupation, and habits, etc. Until the public realizes that this is the kind of teaching needed, physicians are not apt to do much in the direction of public instruction on the subjects that are now under discussion.

Dr. D. C. Brockman, Ottumwa, Iowa, said that instead of putting literature in the hands of young people, facts should be put into the heads of the children. We must not wait till the young man goes to college for this information. High school boys often acquire syphilis and gonorrhea before they start to college. A beginning must be made in the home and in the grammar school. The girls and boys must be taught the elements of sanitary science, the cause of contagious diseases, how typhoid fever, diphtheria, scarlet fever and consumption are propagated and how prevented. The way to prevent disease is to teach the people the primary cause of it, and how to avoid contact with the causative agents. In the public schools the children should be taught more of the practical things that will be of use later in life and less of the useless things which they forget as soon as they get out of school. The older children should have instruction in sexual sanitation. The boys should be taught that gonorrhea is one of the most prevalent and dangerous diseases extant, that syphilis is everywhere and that its baneful influence extends to the next generation. The girls must be taught self-preservation from diseased husbands. They must be made to understand that a man of loose morals in all probability has diseases that will curse his wife and be entailed on his children, and that such a man is not safe for any woman to marry. Parents must be taught to look after and to protect their daughters from men of easy virtue, men who may not be intentional criminals but who have contracted venereal diseases before they knew the danger of them, and who are ignorant of the fact that they will communicate them to their wives and children. Parents should know that the majority of the young men in our cities are already contaminated by these diseases, and that more disease, suffering, and death result to innocent wives and children therefrom than from all other contagious diseases combined except consumption. These facts must be imparted to both young and old until the entire people have a wholesome fear of venereal diseases. Lectures should be delivered to working girls and boys that will warn them of these dangers, and physicians must be the missionaries to spread this gospel of virtue, purity and health.

Dr. Peterkin, Seattle, Wash., declared that as man must make his own morality, prophylaxis must be along educational lines, and men must be taught that immorality is an endeavor on their part to obtain all the pleasure from a law of nature without paying the cost, and that it can only result in disaster to themselves. A man must be taught that if he does not contract venereal disease, he contracts habits that diminish the pleasure of sexual intercourse under normal conditions, and that cause him, if he marries, to make his wife disgusted or indifferent to an act that by mutual endearment rivets the ties of marriage. Young men should be told that continency is not detrimental to health. Physicians should be supplied with literature dealing with prophylaxis, mental and physical, to be distributed at their discretion to patients. The committee of the Washington State Medical Society is doing this, and expects good to follow.

Dr. R. W. Corwin, Pueblo, Colo., declared that the people should be educated regarding the effects of venereal diseases on the race; but the question is, how are they to be enlightened? When asked to speak on this subject to students of one of the eastern universities, his first embarrassment was the language to be used to students outside of medical schools that they might understand, yet not consider him common or vulgar; next, to interest and not to amuse them. Physicians are agreed that the facts presented in this Section should be known to the young; but who shall teach them? If the physician attempts it he will be accused by the profession of advertising, and by the parents of interfering with that which many claim more properly belongs within the province of the duties of the father and mother. If parents only understood the importance of the subject the way would be clear, but as a rule they are indifferent through ignorance and false modesty. Occasionally a parent is found like Mrs. George Gould, who teaches her boys to take an interest in athletics, and that one can not excel in them and dissipate. The boy often can be reached in this way; the girl may be reached through fear; but all boys will not try to be athletes, and most women contract these diseases innocently. The effects of venereal diseases should be taught in the public schools. These diseases do more injury to the human race than alcohol or tobacco, hence the greater need of their being understood.

Dr. A. E. Carrier, Detroit, Mich., stated that while talking about issuing pamphlets nothing has been said about the home. It is the parent's duty to instruct their children. Dr. Carrier asked how many physicians instruct their sons and daughters regarding the dangers of venereal diseases. We must take into consideration the masses who are not educated. The inhabitants of the slums are the ones who spread these diseases. When a pamphlet is handed to a merchant, well and good, he may read it, but it is the people in the slums who must be educated regarding the danger of contracting and spreading venereal diseases. In some states the question of a physical examination before marriage is being agitated, and this Dr. Carrier thinks is a good thing. He thinks that every man and every woman before contracting that obligation should present a clean certificate of health.

Dr. A. Robin, Wilmington, Del., said that he does not think that in this very grave and difficult problem any one method, such as education, will bring about the desired results; for instance, medical students are educated on the subject of venereal diseases, and yet venereal diseases among them are by no means infrequent; this is equally true of unmarried physicians. Education alone will not bring about the contemplated result, for the simple reason that a man about to visit a place where gonorrhea is liable to be contracted is not bothering his mind about logic or pamphlets, but in most cases is under the influence of liquor, and does not remember any injunction he has read. For two years Dr. Robin has lectured to students of the state college on hygienic subjects, and also on venereal diseases. He found that the best results could be achieved through the personal relationship between the students and himself. He put himself in a position that caused him to be looked on by the students as their friend and adviser. One boy came to him and told him that he had contracted gonorrhea. Dr. Robin offered to examine the secretions for him, as often as necessary, explaining the seriousness of the disease, and volunteered such information as would be of benefit to him. He also pointed out the necessity of abstaining from intercourse or excitement. The result was very much better so far as that boy was concerned than if he had given him a single lecture and allowed him to go. Eight months after the attack he asked Dr. Robin if he would allow him to drink gin, he not having tasted liquor for the entire period, although greatly tempted. He was under treatment by another physician, and Dr. Robin referred him to his family physician. What is needed in the colleges is some physician to come in contact with the boys in the capacity of teacher or adviser, but not for the purpose of treatment. There should be someone to whom the boys can go and ask advice about themselves. Dr. Robin considers that education should be personal rather than through literature. Physicians know just about what effect literature has, at least those who have published bulletins for distribution among other physicians. Many people are in the habit of reading nothing unless it is spicy or sporty. In this connection there ought to be also some form of legislative enactment. While reglementation is decried by a great many people. yet it appears that when properly carried out it may be valuable. The control, however, should be placed in the hands of sanitary and not police officers. There should be plenty of dispensaries which would enable the poor young man to get away from the quack and the dispensing druggist, and these dispensaries should be under the control or supervision of the boards of health. An effort should be made to work on all sides rather than to confine the work to circulars alone.

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[*] This symposium is continued from The Journal, March 4. A further part of this symposium is the report of the Committee on Prophylaxis of Venereal Diseases, published in The Journal, June 18, 1904, page 1641.

Dr. Henry B. Baker, Lansing, Mich., stated that in Michigan a law has been in force about nine years, which requires that there shall be taught every year, in every public school of the state, the means by which dangerous communicable diseases are spread. and the best measures for their restriction. There is no text-book on that subject, and if there were, it would probably be out of date in a year; therefore, the law of Michigan requires that the State Board of Health every year shall supply the data and statements which will enable the teachers to comply with the law. There are about twenty thousand teachers in the state, and this has been done for nine years. The diseases which have been dealt with in that manner are consumption, diphtheria, scarlet fever, typhoid fever, and so on, and the relative importance of these diseases has been set forth in leaflets supplied to the teachers. Syphilis and gonorrhea are not included in the instructions, notwithstanding the law as it stands would necessarily include them. A year or two ago the State Board of Health appointed Dr. Baker a committee to work out some plan whereby these diseases could be successfully dealt with. In each state the state board of health should be an educational force along this line. In Michigan, this law. for nine years. has worked wonderfully well in regard to the other diseases. Under that law there is supplementary action by the State Board of Health, which would be especially valuable for education along these lines.

Dr. Frank W. Goodell, Effingham, Ill., said that education may be good or bad. A man may receive a moral education, and if he wants to become a first-class safe blower he receives an education in that line also. It is a question which has two sides of nearly equal strength and weight. as to whether or not men and women should be taught how to prevent the injurious effects of what would otherwise be injurious copulation. If women are taught how to prevent venereal disease, and then taught how to prevent conception, prostitution will increase to an alarming extent. About the only way to prevent the contraction of these diseases is by impressing on the people the fact that a dangerous disease is apt to follow the committing of the indiscretion. Fear seems to be stronger than anything else to prevent crime. There is no one means which will alone prevent the contracting of these diseases, but the enemy should be attacked from every point. Another thing which has not been referred to is that of honor among men as well as honor among women. Nothing has been said about the seduction of men. Men are not prostitutes. So long as women continue to be more than ordinarily attractive to men just so long men will keep up the pursuit. Morality ought to be talked equally to both. In talking with a man who had been much among Indian women Dr. Goodell asked him in regard to the virtue of Indian women as compared with the virtue of our women, and he said it was astonishing, but true, that virtue among Indian women at the time he knew them was equal to virtue among American women. Dr. Goodell said that he knows of no particular means which he could recommend, but thinks that all means should be employed to eradicate the social evil.

Dr. Thomas Grant Youmans, Columbus, Ohio, stated that one of the most important present-day problems is the protection of the innocent from the latent gonococcus. Most men who have been once infected, and who contemplate matrimony, seek medical advice to determine whether or not they are free from infection. Many times this advice is worthless. Therefore, one of the most important things is to show the people, and especially the men who have charge of the medical laws, that the druggist is not a competent man to treat gonorrhea; for many of these cases are treated originally by the druggist. In the second place, the general practitioner should be impressed with the seriousness of the disease. He should be shown that it requires men of special training and equipment properly to treat gonorrhea.

Dr. J. A. Work, Elkhart, Ind., declared that early training in the schools is a grand work. Solomon, although unwise in some things, yet gave the best advice in regard to the training of children. His advice was to "train up a child in the way he should go, and when he is old he will not depart from it." John G. Holland teaches that a young man should keep himself pure, and Dr. Work believes that personal purity should be taught to the infant. He has seen children that were scarcely out of their short dresses who had impure thoughts.

Dr. L. Duncan Bulkley, New York City, said that education is well enough, but until these venereal diseases are put on the list of diseases to be cared for by the boards of health, physicians will never accomplish their purpose.

A STUDY OF METABOLISM IN A CASE CONJOINING MYXEDEMA AND DIABETES MELLITUS.*

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The metabolic changes in the adult have at sundry times and by many careful investigators received due attention, but it is very infrequent to see them investigated in childhood. whether in health or disease; and meeting a case where this research could be carried out and where the bodily health was away from the normal, I have herein set myself the task of studying the metabolism in a child suffering not only with an aggravated form of diabetes mellitus, but where such metabolism was further modified by the fact that he was a congenital cretin.

In the light of recent assertions as to the genesis of diabetes mellitus and the interrelation of it and other dyscrasiæ of similarly hitherto unknown etiology, the case assumes still further interest if we debate the question of the interrelation of the two dyscrasiæ found here. How far was the improvement in the child's mental status due to the small quantity of thyroid extract exhibited and the short time it was employed? How far was it influenced by the secondary disease, the diabetes mellitus? Was the chronic character of the disease at all influenced by the thyroid condition?

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* Read in the Section on Diseases of Children of the American Medical Association. at the Fifty-fifth Annual Session, June, 1904.

Of course these are purely speculative fields, but viewed from the standpoint of our present lack of positive knowledge, this contribution may give an impetus to further study along these lines to pediatrists, though I am well aware that two such formidable nutritive dyscrasiæ are very rarely found in conjunction in the one subject, and I consider my opportunity to study the case one of good fortune.

It may be best at this point to enter into the history of the case, to serve as a basis for the future deductions my experiments along the lines of metabolism have allowed me.

Case 1.—On July 7, 1902, A. R. was brought to my office for diagnosis and treatment, if possible. From his mother I elicited the following history:

Family History.—In paternal line, father is of nervous temperament, but not pathologically. Grandparents normal. One aunt was very nervous and procreated an imbecile. In maternal line, no abnormality of any sort and grandmother still living. On both sides no history of venereal or neurotic affections with the single exception above.

Personal History.—The patient is the last of four healthy and normally procreated children. The mother lays stress on the fact of having suffered great anxiety because of financial reverses at the time of his gestation, but beyond that is at a loss to account for the child's condition. Symptoms of cretinism were visible since birth, but the diagnosis was not made, although the attending physicians seemed to feel that something was not in order. The child was breastfed and the characteristics of his disease, as is usual, did not develop until after he was weaned. He did not attempt to walk until after he was three years old. He suffered with frequent gastric and cardiac crises. After weaning, he became abnormally fat, developed a blank, mask-like face, with stubby nose and thick lips, and old photographs show the typical features of an early case of infantile myxedema. A year ago he was taken to the Postgraduate Hospital, sent there by his physician, where at last the diagnosis was made and suitable treatment by means of thyroid extract instituted.

Present Status.—Child is at present eight years old. He is heavy for his age, has a dull, uninterested face, mask-like, with depressed nose, open mouth, fat, everted lips, prognathic, thick, protruding tongue, lolling speech if a rare word escapes him, slow but not entirely absent mentality. Absolutely no thyroid gland tissue is palpable. Lumps of tissue over the clavicular spaces were present. The abdomen was large and the umbilicus protruded. The epiphyses were enlarged at the knees, ankles, elbows, and wrists. The muscular system was flabby and without tonicity. The skin was dry, scaly and boggy; no perspiration had ever been noticed. The hair was sparse, wiry and lusterless.

Treatment.—As the child at this visit had had no thyroid extract for over four weeks and had previously improved under its use, to judge from the mother's statement, its administration was resumed and in addition to aid his digestion and prevent the ever recurring gastric crises, a pepsin mixture was prescribed.

Keeping him under observation there was a distinct improvement, not only in the loss of the redundant tissue, but in increased intelligence. Although very weak at times, he was much brighter and slightly more active. He had begun to combine a few words into phrases.

Occurrence of Diabetes.—With occasional short intermissions, the thyroid feeding was maintained until in September, 1902, his mother brought him to the office with the history of a new condition which had supervened in the last two weeks. After or perhaps because of over eating of grapes and ripe fruits of other sorts, the child had developed a glycosuria, which the attendant train of symptoms stamped as a diabetes. He had a constant violent thirst, was ravenously hungry and almost constantly micturating.

Urine.—Analysis of the urine showed 10 per cent. of sugar, and some days later even 12 to 15 per cent., passing four liters in twenty-four hours.

Treatment.—He was immediately placed on strict diabetic diet; Vichy given to allay the thirst and alkalinize the urine, *codein sulphate 0.006 gm. was given four times a day.* For the obstinate constipation the fluid extract of cascara was used.

Knowing that occasionally thyroid feeding produced a temporary glycosuria, the tablets were stopped entirely to eliminate them as factors.

Two weeks of this treatment availed little, except that it caused less frequent micturition and less craving for food. The drowsy condition superinduced by the codein was objectionable, however, and the fact that the child was rapidly failing from the withdrawal of the carbohydrates and fats, caused the resumption of a less restricted diet. For a month I did not see the child again, and when he was brought it was found that although analysis showed only 8 per cent. of sugar by trituration and by Robert's fermentation tests, still the myxedematous condition was coming back. The child's intelligence was even less acute than before, mentality was painfully slow, his tongue was protruding worse than ever and the abdomen at umbilicus was larger than at any time I had ever seen him.

As evidently the exhibition or withholding of thyroid extract had made so very little difference on the course of the diabetes, I determined to resume the use of the tablets to at least keep up the good they had before accomplished. The parents stopped them, however, of their own accord, as the child was failing rapidly; and he never received any further thyroid extract in any form since that time. However, later developments showed that this was not essential in his case, as evidently the diabetes itself to a certain extent influenced the cretin condition, as witness the facts that at the time of making these experiments, although the child was very ill with the diabetes, his mental condition, though of course far in arrear of a nine year old boy's, was steadily improving; he was interested in his surroundings, combined words and phrases into sentences logically constructed, had the reasoning powers of a child of about five years of age, was crafty in attaining his objects, quicker in his movements, and, all in all, was making progress.

At the same time, however, the diabetes was far from showing a similar improvement; it was rather at a standstill; and although the child had grown taller, he was thinner also. That the condition was constant, frequent urine examinations have proven, for the percentage of sugar at no time fell below five. His diet was only nominally restricted. At rare intervals a very minute quantity of sugar would slip into the diet; but it was found that otherwise the craving for sweets was not very marked, provided some starches and fats were allowed, as in bread or potatoes. As giving them did not seem to aggravate the trouble and certainly did benefit the patient, they were carefully given, most of the food of course being still proteid in character. This is the reason for the apparent paradox in the diet lists in the body of the paper as viewed from the standpoint of severe diabetes mellitus. To investigate this seeming incongruity, the following experiments in metabolism, imperfect as they are, were undertaken.

They were imperfect because it was impossible without a specially constructed laboratory to determine the respiratory

TABLE 1.

Date	Food	Total Quantity	Water	Protein	Fat	Total Carbohydrate	Ash	Calories per lb.	Calories in Food
Nov. 4	Bread (gm. or cc.)	326.0	126.06	30.42	3.91	169.75	3.91		865.19
	Bread (per cent.)		35.6	9.3	1.2	52.7	1.2	1,205	
	Milk (gm. or cc.)	236.0	205.35	7.79	9.44	11.08	1.65		162.5
	Milk (per cent.)		87.	3.3	4.	5.	0.7	325	
	Egg (gm. or cc.)	56.07	36.45	6.21	8.24	......	0.56		95.63
	Egg (per cent.)		65.	11.7	14.7		1.	765	
	Butter (gm. or cc.)	42.53	4.68	0.43	36.15	......	1.28		337.96
	Butter (per cent.)		11.	1.	85.		3.	3,605	
	Oatmeal (gm. or cc.)	141.75	119.78	3.97	0.71	15.66	0.99		89.06
	Oatmeal (per cent.)		84.5	2.8	0.5	11.05	0.7	285	
	Banana (gm. or cc.)	85.05	64.03	1.10	0.51	18.71	0.68		86.25
	Banana (per cent.)		75.3	1.3	0.6	22.	0.8	460	
	Beef, chopped, (gm. or cc.)	226.08	153.77	47.4	24.04	......	2.49		417.5
	Beef, chopped (per cent.)		67.8	20.9	10.6		1.1	835	
	Potatoes, boiled, (gm. or cc.)	226.8	161.23	5.67	0.23	47.4	2.27		220.0
	Potatoes, boiled, (per cent.)		75.5	2.5	0.1	20.9	1.	440	
	Corn, canned, (gm. or cc.)	3.54	2.69	0.10	0.05	0.67	0.03		14.21
	Corn, canned, (per cent.)		76.1	2.8	1.2	19.	0.9	455	
	Soda Crackers (gm. or cc.)	113.4	6.69	11.11	10.32	82.90	2.38		481.25
	Soda Crackers (per cent.)		5.9	9.8	9.1	73.1	2.1	1,925	
	Coffee (gm. or cc)	66.70	66.05	0.027					0.68
	Coffee (per cent.)			0.04					
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	1065.0							
Nov. 5	Bread (gm. or cc.)	198.45	70.45	17.45	2.38	102.62	2.38		527.19
	Chopped Beef (gm. or cc.)	113.4	76.88	23.7	12.02		1.24		208.75
	Milk (gm. or cc.)	295.7	257.25	8.76	11.83	14.79	2.07		231.25
	Butter (gm. or cc.)	56.7	6.27	0.57	47.20		1.70		450.63
	Oatmeal (gm. or cc.)	113.4	95.82	3.18	0.06	12.53	0.79		71.25
	Oatmeal Gruel (per cent.)	59.2	54.23	0.71	0.24	3.75	0.30		19.37
	OatmealGruel (per cent.)		91.6	1.2	0.4	6.3	0.5	155	
	Soda Crackers (gm. or cc.)	28.35	1.67	2.78	2.58	20.72	0.6		120.31
	Potatoes, cr'm'd, (gm. or cc.	56.7	42.58	1.17	2.70	10.09	0.85		63.13
	Potatoes, cr'm'd, (per cent)		75.1	2.06	3.	17.8	1.5	505	
	Potatoes, b'l'd, (gm. or cc.)	28.35	21.40	0.71	0.03	5.93	0.28		27.5
	Coffee (gm. or cc.)	59.20	59.15	0.023					0.68
	Tea (gm. or cc.)	59.20							
	Water (gm. or cc.)	1095.0							
Nov. 6	Bread (gm. or cc.)	170.10	59.64	15.82	2.04	88.57	2.04		451.86
	Milk (gm. or cc.)	335.27	291.68	11.06	13.41	16.26	2.35		223.41
	Egg (gm. or cc.)	85.05	55.28	9.42	12.5		8.5		145.29
	Lamb (broiled) (gm. or c.c.)	170.10	80.97	36.91	50.86		2.21		624.36
	Lamb (per cent.)		47.6	21.7	29.9		1.3	1,665	
	Potatoes (c.) (gm. or cc.)	42.53	24.04	1.10	1.28	6.87	0.64		47.34
	Oatmeal (gm. or cc.)	170.10	143.73	4.76	0.85	18.80	1.19		106.86
	Apple (stewed) (gm. or c.c.)	42.53	25.98	0.085	0.34	15.12	0.23		22.81
	Apple (stewed) (per cent.)		61.1	0.2	0.8	37.2	0.7	285	
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	89.0							
	Water (gm. or cc.)	473.0							
Nov. 7	Bread (gm. or c.c.)	198.45	70.65	17.47	2.38	103.58	2.38		517.17
	Milk (gm. or cc.)	414.0	360.18	13.66	16.56	20.70	2.90		81.24
	Beef stew (gm. or c.c.)	226.8	191.65	10.43	9.75	12.47	2.90		185.0
	Beef stew (per cent.)		84.5	4.6	4.3	5.5	1.1	370	
	Lambchop (gm. or cc.)	141.75	67.47	30.66	42.38		1.84		520.3
	Oatmeal (gm. or cc.)	170.10	143.73	4.76	0.85	18.80	1.19		106.86
	Butter (gm. or cc.)	56.70	6.24	0.57	48.2		1.70		450.62
	Coffee-cake (gm. or c.c.)	56.70	12.08	4.03	4.25	35.83	0.51		203.13
	Coffee-cake (per cent.)		21.3	7.1	7.5	63.2	0.9	1,625	
	Molasses (gm. or c.c.)	28.35	1.76	1.94	2.47	21.46	0.62		119.38
	Molasses cake (per cent.)		6.2	7.2	8.7	75.7	2.2	1,910	
	Apple (raw) (gm. or c.c.)	14.18	12.07	0.064	0.07	2.09	0.04		9.06
	Apple (raw) (per cent.)		84.6	0.4	0.5	14.2	0.3	290	
	Coffee (gm. or cc.)	118.40	118.35	0.05					1.16
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	1063.0							
Nov. 8	Bread (gm. or cc.)	141.75	50.46	13.18	1.70	74.70	1.70		376.55
	Milk (gm. or cc.)	414.0	360.18	13.66	16.56	20.70	2.90		284.35
	Roast Beef (gm. or c.c.)	170.10	81.99	37.93	48.65		2.21		607.50
	Roast Beef (per cent.)		48.2	22.3	28.6		1.3	1,620	
	Oatmeal (gm. or cc.)	170.10	143.70	4.76	0.85	18.80	1.19		106.86
	Butter (gm. or cc.)	56.70	6.24	0.57	48.20		1.70		450.62
	Potatoes (gm. or cc.)	56.70	42.81	1.42	0.06	11.85	0.57		55.0
	Cauliflower (gm. or c.c.)	113.40	104.67	2.04	0.57	5.33	0.79		35.0
	Cauliflower (per cent.)		92.3	1.8	0.5	4.7	0.7	140	
	C.-starch pud'g (gm. or c.c.)	56.70	7.94		0.06	48.71			200.0
	Corn-starch (per cent.)		14.		0.1	85.9		1,600	
	Stewed apple (gm. or cc.)	28.35	17.32	0.06	0.23	10.55	0.20		45.62
	C.-cake (gm. or cc.)	141.18	3.02	1.01	1.06	8.96	1.28		50.78
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc)	29.57							
	Water (gm. or cc.)	917.0							
Nov. 9	Bread (gm. or cc.)	113.40	40.37	10.55	1.36	59.76	1.36		301.24
	Milk (gm. or cc.)	443.55	358.89	14.64	17.74	22.18	3.10		101.55
	Egg (gm. or cc.)	42.53	27.64	4.98	6.25		0.43		72.65
	R. Beef (gm. or cc.)	86.05	41.48	19.19	24.61		1.12		303.75
	Potatoes (gm. or cc.)	86.05	64.62	2.24	2.58	15.32	1.29		94.68
	Oatmeal (gm. or cc.)	226.80	191.64	6.35	0.112	25.06	1.60		142.50
	Ch. Beef (gm. or cc.)	56.70	38.45	11.80	6.01		0.62		105.00
	Coffee (gm. or cc.)	59.20	59.15	0.03					0.58
	Tea (gm. or cc.)	29.57							
	Water (gm. or cc.)	798.0							
Nov. 10	Bread (gm. or c.c.)	212.63	75.71	19.77	2.55	112.06	2.55		564.83
	Milk (gm. or c.c.)	414.0	360.18	13.66	16.56	20.70	2.90		81.24
	Egg (gm. or c.c.)	42.53	27.64	4.98	6.25		0.43		72.65
	Beef (boiled) (gm. or c.c.)	198.45	75.61	51.99	69.36		1.79		1228.19
	Beef (boiled) (per cent.)		38.1	26.2	34.9		0.9	2,805	
	Oatmeal (gm. or cc.)	113.40	95.81	3.18	0.06	12.53	0.80		71.25
	Coffee cake (gm. or cc.)	14.18	3.02	1.01	1.06	8.96	1.28		50.78
	Stewed apple (gm. or cc.)	56.70	34.64	0.11	0.45	21.10	0.40		91.24
	Potatoes (gm. or cc.)	56.70	42.81	1.42	0.06	11.85	0.57		55.0
	Coffee (gm. or cc.)	89.0	88.95	0.04					0.97
	Water (gm. or cc.)	1123.5							

output of the subject. With this exception, however, the results are all vouched for. The mother of the patient, an unusually intelligent woman, was easily instructed and faithfully carried out the weighing and measuring of the food and drink and keeping an accurate record of the items of the diet; she collected and measured and sent for analysis the urine passed, keeping a record of the time and quantity of the micturition. A two-ounce specimen of every urination was saved in a clean bottle, labeled with time and quantity. The rest was poured into a separate vessel and a liter of this twenty-four hour mixture sent at the same time each morning for the determination of general constituents.

Examination of Excreta.—The stools were collected and weighed and then sent to the office, the particular feces being marked off by the ingestion of lamp black. It was necessary to give patient an aloin pill every night, as otherwise I would have gotten no stool for a week or more. As it was, stools were only passed four times during the week of experimentation. As said above, for the figures of the tests of urine and feces, I can vouch, many of them being repetitions.

Another possible source of error, which, however, is minimal, is the fact that because of lack of laboratory facilities I was unable at first hand to make the chemical analyses of the foodstuff ingested. As representative, however, of the food value and percentage of chemical ingredients of American foodstuffs I could not go very far wrong in making use of Professor Atwater's[1] figures, and these were used to serve as a basis for my work. The averages he gives were used as being most nearly correct for the food given the patient.

In the analysis of urine, the quantitative Fehling test was used for sugar; urea was determined by the hypobromid method; the total nitrogen by the Kjeldahl method as given by Neubauer and Vogel;[2] acetone was tested for only qualitatively by Lieben's and Legal's

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[1] Methods and Results of Investigations on the Chemistry and Economy of Food, Bull. 21, U. S. Dept. Agriculture.

[2] Neubauer and Vogel: Analyse d. Harns.

reason it becomes more than difficult to adequately determine any answer to the questions propounded in the beginning of the paper. There is on record, however, one case, reported by C. A. Ewald,[6] in which a woman fifty-two years old, who had developed a typical myxedema, was cured by the exhibition of thyroid gland extract, and where diabetes of a much milder form than the one I detailed above, developed afterwards. This also became a permanent affection. There was in this case also no doubt as to the affection, the patient having been presented to the Berlin Medical Society, and others, as Ewald remarks, had independently arrived at the same diagnosis.

TABLE 3.

Date	Time	Quantity Cm.³	Sugar		Quantity in 24 Hrs. Cm.³	Sugar		Urea Gm.	Total N. Gm.	Acetone	Diacetic Acid	Albumin	Indoxyl	Chlorids	Specific Gravity	Calories Wasted as Nitrogen (a) and Carbohydrate (b)
			%	Gm.		%	Gm.									
Nov. 4	10.30 a.m.	355.0	7.8	27.69											1033	a) 251.74
	1.30 p.m.	414.0	7.0	28.98											1031	b) 650.91
	4 00	295.7	7.81	23.09											1034	
	6 35	236.0	8.5	20.06											1035	
	8.30	236.0	9.25	21.83											1040	
	4.10 a.m.	679.5	7.24	49.20											1030	
					2128.18	7.46	158.76	6.39	9.83	Trace....	Negative	Negative	Normal..	Normal..	1035	902.65
Nov. 5	8.10	236.0	6.85	20.06											1036	a) 211
	11.00	532.0	6.66	35.43											1031	b) 706
	1.30 p.m.	295.7	7.46	22.05											1032	
	4.20	473.1	8.19	38.75											1034	
	8.30	295.7	7.25	21.44											1032	
	11.05	295.7	7.35	21.73											1032	
					2513.0	6.85	172.14	5.026	8.25	Strong...	Negative	Negative	Normal..	Normal..	1031	917.
Nov. 6	9.50 a.m.	503.0	6.94	31 01											1032	a) 363
	12.05	207.0	7.67												1035	b) 539
	3.25 p.m.	266.0	7.67												1038	
	8.05	295.7	7.93												1042	
	4.35 a.m.	414.0	8.25												1038	
															1038	902.
Nov. 7	8.15	207.0	6.94	14.37											1035	a) 190
	2.00 p.m.	591.5	6.75	39.92											1035	b) 680
	3.55	325.3	6.56	21.14											1030	
	11.55	503.0	8.06	40.54											1039	
	6.30 a.m.	561.6	8.82	49.53											1040	
					2187.20	7.57	165.50	4.38	7.42	Negative	Negative	Negative	Normal..	Normal..	1036	870.
Nov. 8	10.00	74.2	7.35	5.45											1037	a) 209
	2.45 p.m.	473.1	6.49	30 60											1030	b) 502
	5.30	325.3	6.57	2											1030	
	9.15	591.5	7.04	4											1035	
	3.20 a.m.	295.7	6.66	1											1030	
															1032	711.
Nov 9	10.15	295.7	X	X											X	a) 273
	12. 0 m.	325.3	6.09	19.81											1032	b) 651
	2.30 p.m.	440 0	7.14	31.42											1031	
	4.45	414.0	6.57	27.20											1034	
	8.45	473.1	6.00	28.39											1030	
	3.45 a.m.	591.5	7.04	41.64											1034	
															1032	924.
Nov. 10	11.45	591.5	6.41	37.90											1029	a) 230
	3.00 p.m.	493.11	7.35	34.77											1032	b) 726
	5.30	385.0	7.57	2											1033	
	8 30	236.0	X												X	
	11.05	591.5	6.66	[illegible]											1032	
Nov. 11	10.30	503.0	5.88	29.58											1030	
					2780.11	6.37	177.09	5.56	8.96	Strong...	Negative	Negative	Normal..	Normal..	1031	956.
	Totals...															6182.

Under these circumstances it seems strange that Lorand, who in bibliography quotes Ewald, and Bettman,[7] who cites Ewald's case, should make the statement that in true myxedema, diabetes was a rare if ever-noticed occurrence; in other words, casting a doubt on the well authenticated case of Ewald which furnished an exception to his theory. Of course that it is not an every day occurrence is freely admitted; yet the possibility of its occurrence must be likewise asseverated, for what has happened once or twice may happen again.

In this case it is only logical to look at both diseases as factors in the condition, but which was the more potent is purely speculative. So far as our knowledge, much enriched in the last few years, of cretinism and analogous conditions goes, the nutritive dyscrasia caused by the lack of thyroid substance in the blood is a profound one. This, in this patient, was ameliorated and decidedly improved by the oral administration of thyroid extract tablets. As pointed out before when the additional abnormal state of diabetes mellitus supervened, the child, who had because of progressive weakness not received any further thyroid treatment, nevertheless immediately not only regained all the territory lost, but even gained new so far as disappearance of symptoms and increase of intellect were concerned.

How far, then, does the occurrence of diabetes mellitus and its train of causes and effects in this cretin condition explain the working of thyroid extract in the uncomplicated myxedematous state? Is it not a fact that to a certain extent the improvement in that interesting condition following therapeusis is due to the absorption and excretion of the mucin deposited in the

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the etiology of both diseases very similar to mine, but I can not share his optimistic prognosis even for the complication of both diseases. Thyroid extract in both of his patients showed a very favorable influence on the conjoined morbid conditions, and even earlier on the diabetes than on the myxedema, thus explaining with a great degree of certainty the rôle of the thyroid gland in the as yet unknown pathologic metabolism, which is manifested in a group of symptoms called diabetes mellitus. He thinks it highly probable that independently of the digestive functions there is a special internal secretion of the pancreas which is at fault.

6. Ewald: Nothnagel's Handbuch, vol. xxii, 1896; Berl. klin. Woch., 1895, No 2.

7. Bettman: Berliner klin. Woch., June, 1897.

skin and the various connective tissue recesses by the use of the thyroid gland's secretion? Is that therefore its real function when we administer it therapeutically? Was not nature in this case perhaps performing the same duty that we with thyroid juice strive to do, namely, removing the superfluous mucin material that the body usually uses up in other ways, by superinducing a diabetes mellitus, one of whose main effects on the system is the increased loss of all sorts of tissue and tissue food by excretion?

[illegible] recent monograph Lorand[8] of Karlsbad seeks [illegible] this interrelation of diabetes and lesions [illegible] diseases of the ductless glands (Blutgefässdrüsen) [illegible] quite ably shows that so far as symptoms, findings at necropsy, etc., go, that diabetes mellitus, exophthalmic goiter and acromegaly are dyscrasiæ based on the same causation, one often running into the other or exhibiting similar clinical features in the abstract. His argument is powerful and well backed up by many able authorities, but although no doubt true in the main has this case as its exception.

TABLE 4.

	INCOME	OUTGO		GAIN
		In Urine	In Feces	
Carbohydrates	1389.50 gm. 5697 Cal.	1066.35 gm. 4372 Cal.	185.31 gm. 760 Cal.	137.84 gm. 565 Cal.
Protein	581.93 gm. 2385 Cal.	421.37 gm. 1728 Cal.	124.75 gm. 512 Cal.	35.81 gm. 145 Cal.

He says: "It is a fact that sometimes in the course of diabetes mellitus, Basedow's disease has been observed as a hyperthyroiditis (Hartman, Grube, etc.). Now the question arises, are the lesions in the thyroids or adrenals degenerative, i. e., a decreased or rather an increased activity? We would not hesitate to decide for the latter, since in atrophic conditions of these glands (as in myxedema and Addison's disease) a glycosuria is extraordinarily rare, if it has ever been observed. On the contrary glycosuria has been frequently observed in diametrically the opposite condition to myxedema, Basedow's disease, and besides very frequently subsequent to thyroid feeding."

Now there never was the least shadow of a doubt as to the diagnosis of the condition preceding the diabetes mellitus in this case. If ever cretinism was typical, in symptoms and response to treatment, this was and that the diabetes was not due to an induced hyperthyroiditis is to my mind equally established. First because the child had preliminary to the supervention of the diabetes mellitus received no thyroid extract for the period of four weeks and secondly, the fact that the ingestion of thyroid was at all times very small in quantity, and thirdly, resumption of the thyroid feeding did not increase excretion of sugar, but served only to run the child further down in weight. That there was complete athyria of course only necropsy, which was refused, would have proven; but palpation of the throat was, because he was so thin, feasible to such an extent that the cartilages of the larynx and each individual tracheal ring, the separate muscles, felt as cords, could be mapped out down to the suprasternal notch and at no place was there any thyroid or any gland tissue palpable. Under these circumstances Lorand's theory as to the genesis of diabetes needs modification. So that although the facts he adduces to support his theory are all true and powerful arguments, yet we must suggest that the last word as to the exact interrelation of the various dyscrasiæ is even now unspoken, and we still stand rather on the knowledge adduced by Pineles[9] "that acromegaly, myxedema, cretinism, Basedow's disease and in some cases diabetes mellitus represent diseases of glands (Blutgefässdrüsen) in the course of which anatomic or functional disturbances in other glands supervene. There appears accordingly to be some sort of anatomic and physiologic interrelation between these glands, so that clinically when one gland is diseased, certain vital symptoms referable to disturbances of function in another gland are observable." In other words, the exact conditions are still unknown.

As a condition without such a complication, diabetes mellitus in a child is not frequent. In the literature, so far as I could find, the number of cases does not exceed six hundred; Külz reporting the collection of 111 cases; Redon,[10] 32; Stern,[11] 117, including 21 already discussed by Külz;[12] Wegeli,[13] 108 cases; and Saundby, 159 cases.

Various other writers, Senator,[14] Baginsky,[15] Niedergesäss[16] and Günther[17] deal with various phases of diabetes mellitus in children, but as was pointed out, nowhere are the two conditions detailed above conjoined in one patient. In fact, Scholz[18] in experiments was unable by the administration of thyroid preparations to produce a single case of even alimentary glycosuria in 100 cases of cretinism. That the use of thyroid preparations in other conditions have caused both alimentary and even permanent glycosuria, many careful investigators have affirmed and reported. Bettman[7] reported the results of experimental administration of it to 20 people who were under observation for various ailments, and in 11 (or 55 per cent.) he was enabled to produce a temporary glycosuria, which, however, totally disappeared on ceasing the exhibition of the remedy. So that he too points out its rarity in myxedema following thyroid feeding, while it is comparatively frequent as a follower of exophthalmic goiter, in both temporary and permanent form.

So, if we study the literature for this case from the viewpoint of diabetes alone, it is simply for the reason that I have been unable to find that anything else bearing on the coincidence has thus far been written. But even so, the results of the study of such literature is very interesting and instructive.

Although diabetes mellitus in a child is infrequent, it is by no means so rare as was formerly thought and taught. Sex makes but slight difference in the occurrence of the disease and although Günther[17] points out the greater frequency of diabetes in female children, Saundby in his collection found the sexes about equal in numbers.

PATHOLOGIC ANATOMY.

This field also offers nothing conclusive. Great as are the strides that have been made in unearthing the truths about such nutritive disturbances as myxedema, athyria, infantilism, acromegaly, still the last words are far from spoken. And this is most true with the condition known as diabetes mellitus. Apart from the fact of sugar being found in the urine, together with the increase of other excretory products, no one symptom or group of symptoms points out to us where to hunt exclusively for the causative lesion. Theorizing does not help us to any extent, and postmortems themselves are unsatisfactory, for many times we can find no assignable cause whatever. That head injuries, operative procedures and traumata to other parts of the body may cause glycosuria is a well-known fact.[19] So, too, it can be of very small value to know that there were found at various necropsies of children dead with diabetes mellitus—free fat globules in the blood, fatty degeneration of the kidney epithelium, parenchymatous nephritis, all, it seems to me, effects rather than causes of diabetes; there were also diminution in size of the pancreas, an atrophy, or again no changes at all in the pancreas.

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[8] Die Entstehung d. Zuckerkrankheit u. ihre Beziehungen z. d. Veränderungen d. Blutgefässdrüsen.

[9] Pineles: Volkmann's klin. Vorträge, 1899, p. 242.

[10] Redon: Comptes rendus Soc. de Biologie, 1877, Paris, 1879, 6me, vol. iv, p. 175; Du Diabète mell. chez. l'enfant, Thèse de Paris, 1878.

[11] Stern: Arch. f. Kinderheilk., vol. ii, 1890, p. 81.

[12] Külz: Gerhardt's Handbuch d. Kinderkrankheiten, vol. iii, Tübingen, 1878.

[13] Wegeli: Arch. f. Kinderheilk., vol. xix, 1896, pp. 1-65.

[14] Senator: Ziemssen's Cyclopedia, vol. xvi, p. 898.

[15] Baginsky: Arch. f. Kinderheilk., vol. xxii, pp. 257-265.

[16] Niedergesäss: Diabetes Mellitus Infantum, Diss., Berlin, 1873.

[17] Günther: Inaugural Dissertation, Marburg, 1874.

[18] Scholz: Verhandl. d. inn. Med., 1902, p. 20.

Such being the state of our knowledge, it makes but slight difference what theory we assume for explaining the condition we know as diabetes mellitus. Even its physiology is not settled as yet, but its pathology is only empiric. Its etiology under these circumstances is not by any means proven. Stern[11] in his article lays it to heredity of a diabetic or a neuropathic condition, trauma, and too free ingestion of saccharin foodstuffs; while Bergesio[20] ascribes it to hydrocephalus, head traumata, heredity and dysentery. In my case the too free ingestion of grapes certainly seemed the immediate cause of the condition. Of course, to a certain extent, the neuropathic tendency is also assignable from the tendency on the paternal side.

PROGNOSIS.

The prognosis in any event is very grave always, and as Senator[14] puts it, "the younger the patients are the more malignant and the more rapid in general is the course;" and as Stern[11] has pointed out even if for many years sugar has disappeared from the urine, most of the patients die from recurrence of the malady. So far as the duration of the disease is concerned, the prognosis is far from favorable. In 32 diabetic children Redon[10] found two and one-half years the longest duration of the disease; and Külz[12] found that of 46 diabetic children, 16 died in less than one-quarter year; 8 in one-quarter year; 6 in one-half year; 5 in one year; 6 in two years; 4 in three years; and one in four years. So that more than half ran their course in three months or less. "It is probable," Senator says, "that in acute cases, where from the apparent beginning of the disease until death, but a few weeks or even days elapse, which for that matter occurs almost without exception in children or young persons, the excretion of sugar and perhaps the other derangements also have existed for a long time unobserved, until a sudden change in the patient's health arrested the attention, so that in these cases, as in most others, an accurate specification of the time can not be made. In a case of Becquerel, the disease in a boy nine years old, would seem to have lasted but six days."

SYMPTOMATOLOGY.

It is not especially necessary to enter into the symptomatology of the disease in childhood, as it does not differ materially from those symptoms seen in adult life. There are a number of phases that merit consideration, however.

Sugar in the Urine.—This most important symptom of the disease may vary from a minute but constantly increasing amount to an almost incredible quantity. Even a small percentage, one or two, when measured by the energy wasted and figured in calories, is an enormous drain, so that when such loss as Senator speaks of in a child of twelve years, and weighing 17 kgm., who passed between 358 to 570 gm. of sugar daily, is taken into consideration we can see the disadvantage nature labors under in trying to restore to normal, functions so perverted. So, too, the amounts passed by my case, ranging from 120 to 180 gm. per day, and which in the beginning of the disease far exceeded this quantity, (at one time passing 4 liters of urine containing 12 per cent. of sugar, equal to 480 gm. in twenty-four hours) show an enormous loss of fuel value to the system.

Coincident with this, Senator points out the increased output of nitrogen, as urea. "The quantity voided in twenty-four hours may amount to twice or thrice the normal, so that in adults a discharge of 100 gm. or more (142.0 gm. in a case of Dickenson's) has been repeatedly ascertained." This I was unable to verify in my patient, for if anything, with a weight of 14 kgm., he was passing less urea than was normal for such weight and age.

So far as the bases in the urine are concerned, their increase or decrease are as yet not assignable any clinical value. It is only of interest that Neubauer[21] "saw in the urine of a diabetic child six years old, as the mean of nine days, a daily excretion of 0.71 gm. of calcium phosphate (about double the normal quantity for an adult) and 0.388 gm. phosphate of magnesia, (the normal amount in the adult being about 0.6 gm.)"

The presence of acetone and diacetic acid are of more and graver prognostic importance. The former, acetone, is of less moment than the latter, for many if not most saccharin urines contain it. Its presence causes the peculiar aroma of diabetic urine, and in larger quantities the causation of the acetonemia, found at the time of diabetic coma, is sought. Petters[22] first demonstrated its presence in diabetic urine. Rupstein and later Külz[12] likewise found alcohol in the urine of a diabetic, and that too in a specimen fresh from the bladder."

I can not accept that the presence of acetone in the urine is prognostically a rapidly fatal sign, for at all times it was possible to demonstrate acetone in my patient's urine, and instead of losing he really gained ground. As for diacetic acid, even very careful testing failed to give me the typical reaction at any time, except faintly just before death.

As for albumin of any sort, at no time from the beginning of the disease until death have I been able to demonstrate its presence to my satisfaction, and microscopic examination has thus far failed to show in standing or centrifuged urine any of the typical tubular casts described by Külz[12] and by Sandmeyer[23] and on whose occurrence during the prodromal phenomena of coma and during it, so much stress is laid. They are described as short, mainly hyaline or even granular casts, which appeared suddenly in up to that time cast-free urine in very great numbers. They were not missed in any single case of coma examined. No casts of any sort were demonstrable in my case, except a few granular ones just before death.

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[19] Reimer (Jahrb. f. Kinderheilk., X-1-4, p. 1 and p. 219, 1876) reports a case of diabetes mellitus in a 7-year-old boy, caused by a giant-celled glioma on the floor of the fourth ventricle. The symptoms were localized cephalalgia, violent vertigo, apathy, anorexia, but great increase in thirst, with the consequent excretion of strongly saccharin urine (6-8 pounds of specific gravity 1036). Only once before this had a swelling been found at this site (by Rilliet and Barthez, Maladies des Enfants, vol. iii, p. 555), but there was no mention of any glycosuria.

[20] Bergesio: Jahrbuch f. Kinderheilk., N. F., vol. xxiii, 1886, p. 217.

[21] Jour. f. prakt. Chemie, vol. lxvii, p. 65.

[22] Prag. Vjhrsschr., 1885, vol. lxii, p. 2, and 1857, vol. lv, p. 81.

[23] Sandmeyer: Verhandl. d. Xten. Congress f. Inn. Med., Wiesbaden, 1891, p. 345.

So much for the urine. Other symptoms are identical with those seen in the adult. The child was at all times so ravenously hungry that he would steal any and everything in the line of food, even a cake of compressed yeast.

As will be seen by Table 2 he consumed large quantities of fluids per day, but had learned to curb his thirst enough, so that when taken out he could go for many hours (six to ten) without a drop, but making up for it on his return. So, too, the bladder was under control. Where formerly he was almost constantly going to empty it, he latterly controlled it quite well for half a day at a time if away from home.

As in the adult diabetic the metabolic processes following a full meal, caused a cerebral ischemia and a great drowsiness supervened. Even at the end of a full meal his head would go down on his arms and he would fall into a sound sleep. Contrary to the findings of Blau,[24] who says that in the progress of the disease diabetics become more and more indolent and averse to mental employment, this case was if anything much brighter than ever before. Now when we consider the fact that cretinoid conditions are not conducive to mental activity and this same effect follows diabetes mellitus, again the question, how far the coincidence of the two in the same personage, the one tended to modify the other, assumes further interest and force.

Of interest in this same field is the condition of the mouth and teeth. The poor, uneven and delayed eruption of the teeth in cretins is a matter of common knowledge; this was well portrayed in the case discussed. When finally, however, thyroid extract was administered the teeth erupted very fast. However, the diabetes supervened, and immediately the acid condition of the mouth, and the occurrence of thrush tended to destroy the good done. Alkaline washes, however, removed this tendency and dental attention served to put the mouth in fair condition and remove the caries which caused frequent suffering to the uncomplaining little patient.

At no time had he been a sufferer from the pyodermatosis or of any trouble of an embolic nature which so frequently accompany diabetes of an aggravated form in the adult. So also no pruritus occurred; to be explained I suppose by the need of cleanliness inculcated on the child's attendants.

So far as treatment is concerned, he received scarcely any medicine. It was found that the action of codein was objectionable; bichlorid of mercury gave no results at all, even when exhibited for a month; cod-liver oil became distasteful, and gave no return commensurate with the difficulty of administration; so that the patient, besides an occasional cathartic, took nothing but one of the newer hemoglobin preparations, which, however, seemed to serve a very good purpose. Omitting it for only a few days, the loss was immediately discernible, and a few days elapsed after its resumption before the lost ground was regained. As he held his own with it and the fairly modified diet, no change was instituted, except that as a result of the experiments the mother was advised to give him more freely of meats, as his protein income did not seem quite adequate to his needs.

In this connection it is interesting to note that, although the dietaries of Voit, Moleshott, Wolff and Playfair call for from 3,032 to 3,160 calories daily for a man at moderate work, and which Atwater[25] places at 125 gm. of protein and 3,500 calories of energy for the American dietary, that this patient, even under the stress of these dyscrasiæ, consumed only the amount of food usually figured for a child of his age (83 gm. of protein and 2,000 calories of energy per day), although, of course, as seen by Table 4, he lost the greater part of it again.

SUMMARY.

Before closing this paper and formulating the conclusions warranted from the observation of this single case, it will be profitable to revert once more to the speculative question of the interrelation of these diseases.

After Ord, Gull, Murray[26] and Horsley had perfected their theories and technic in the production of athyria in animals, the knowledge of the physiologic functions of not only the thyroid but of the other glandular structures, the hypophysis cerebri, thymus, adrenals, and last, but not least, the pancreas, was quickly and thoroughly deepened. The French physicians have continued their studies on the lesions of the pituitary gland and the consequent acromegaly; English physicians have presented numberless cases of Basedow's or Grave's disease and myxedema, and justly insisted on the etiologic factors being sought respectively in hyperthyroidism and hypothyroidism, although their surgical aspects assumed greatest proportions in German hands; and it was left for American investigators to probe the pancreas and its lesions as causative of diabetes mellitus.

Recent work on the interrelation of these various functions and their disorders offers nothing conclusive as yet, so that one theory has at present as much or as little *raison d'être* as another, and we must only guard against drawing the outlines too sharply, for an exception here and a criticism there may change the face of the matter very shortly. Under these conditions it may, perhaps, be well to see just what the question covers in this case.

We have seen a case which, in its sixth year, presents the unmistakable symptoms of an infantile myxedema. There is no doubt as to the condition, for besides the typical general habits, the *sine qua non,* the absence of the thyroid gland was as plainly demonstrable as it could be *in vivo.* Of course, whether this was preceded by a fetal thyroiditis, as some writers have affirmed such cases are, must be purely problematical; all we know is that great nervousness and mental strain accompanied the gestation, and it is feasible to suppose that the maternal thyroid and its use, influenced somehow the thyroid growth and function in the fetus. This point is purely theoretical and not strongly defensible. In any event, when the child was born, it was puny, with ill-developed facial expression, and was pronounced by the attendant physician, idiotic.

Practice of Medicine, vol. iv.

[25] Atwater and Bryant: The Chemical Composition of American Food Materials, Bull. 28, U. S. Dept. Agriculture.

[26] Murray: Diseases of the Thyroid Gland, Twentieth Century Practice of Medicine, vol. iv.

Frequent gastric disturbances supervened, although as was said, the child was breastfed. After weaning, however, when the supply of thyroid extract he got from his mother's milk was cut off, the child immediately, without any intercurrent illness, infectious or referable to the thyroid, developed a typical sporadic cretin state.

After a number of years the appropriate treatment was instituted. Small, very gradually increased dosage was employed; the mother carefully instructed to watch the least symptom of overdosage. Frequent intermissions were ordered to prevent such occurrence. The child was several times presented to the classes at the Postgraduate, and the good effect of the thyroid gland extract emphasized. At this point the child was put into my care, inasmuch as the mother felt the trip to the city too irksome and embarrassing for herself and child, and she desired treatment at her own home. She had begun to let up on the administration of thyroid, alarmed by the child's progressive emaciation, although she had been informed that this tendency prevailed when thyroid was given. At that time, as I had charge of two other cases of a similar nature. one a typical cretin, in whose urine I had found an almost pure deposit of uric-acid crystals, in such numbers and such beautiful formation, as I had ever seen before, I obtained a specimen from this patient also to determine if the same condition prevailed here. The urine at that time was normal in every respect and contained no sugar. To continue the good accomplished, small doses of thyroid tablets (0.2 gm. pro die) were administered, with frequent but unnecessary intermissions, as at no time did any tachycardia, vomiting or other hyperthyroid symptom develop.

Now, because the supply had run out, the child received no thyroid for a period of four weeks, and at the end of that time is presented with a violent glycosuria. However, the interesting discovery is made that in contrast to the accepted pictures of both athyria and diabetes mellitus, the patient presented less hebetude, is brighter, more active, his growth was noticeable, and, in fact, the supervention of the one condition served to relieve the other. Whether or not we had a vicarious action of some other gland must, of course, be purely speculative; as *a priori* must also be the condition of the other glands. We might infer an increased adrenal activity from the fact of a very small loss of blood during extraction of carious teeth; certainly we know that both his testicles were atrophied a few months before death.

But it is not warranted to go so far as Lorand[8] does and the broader statement of Pineles[9] must still hold good, and besides, as Ewald[6] and, I hope, I have shown, diabetes mellitus may follow myxedema, whether you ascribe it to thyroid feeding or not. Of course, the contention that without such feeding diabetes has not been seen after myxedema, must also be admitted, as I can find no such case in an exhaustive search of literature; while it is equally true that in the administration of thyroid extract in dermatologic and general practice in cases where no lesion of the gland was demonstrable, temporary glycosuria supervened.

115 Beech Street.

Administration of Digitalis.—There is no drug which requires a more intimate knowledge and appreciation of existing pathologic conditions for its successful administration than digitalis, writes William F. Clemsha. The more carefully and thoughtfully we give it, the more uniform and satisfactory will be our results.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.*

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The contents of this paper may be divided as follows:

1. A consideration of the various operative methods of approaching and of dealing with the ganglion.
2. Further points referable to an operative procedure heretofore described.
3. Histories of twenty personal cases thus operated on.
4. A discussion of the surgical complications and sequelæ of these cases.
5. Notes on the distribution and function of the fifth nerve deducted from postoperative observations.
6. Afterword: pathology.

Neuralgia Quinti Major. (Tic douloureux. Epileptiform neuralgia.) This form of neuralgia has been placed in a group apart owing to the marked similarity that one case bears to another both in course and symptoms. In the earliest stages, each case appears to be one of simple neuralgia, and under this impression relief has been sought in removal of teeth or in other operative procedures. At last the full picture of this hideous disease unrolls, varying in unessential details from the classical type.

In a recent medical treatise[1] thus is introduced the section on that form of trigeminal neuralgia which, unlike the other varieties, the minor neuralgias of the fifth nerve, is an affliction demanding surgical intervention, and for the relief of which the removal of the semilunar ganglion (Gasser) must ultimately be contemplated. It is, perhaps, deserving of emphasis, therefore, at the start, that from this group of cases are excluded the comparatively simple neuralgias arising in the trigeminal territory; those which are incidental to some general state of bodily ill health; those reflexly occasioned by some local disease; those ordinarily confined to one or another of the peripheral branches of the trigeminal nerve, all of which are usually amenable to therapeutic measures[2] other than surgical or, at the outside, to minor operative procedures.

Barely thirteen years have elapsed since Horsley and Macewen,[3] quite independently, and, so far as I am aware, for the first time, attempted through a high temporal opening to divide the trigeminal nerve in two cases of tic douloureux. Both resulted fatally, an event commonly ascribed to the undue severity of the intradural method followed in each instance. A few years later, Professor Rose of Kings College boldly essayed to attack the ganglion in a major case of the same malady by primarily excising the superior maxilla, by trephining the base of the skull beneath the ganglion, and by destroying the structure, thus blindly exposed, with the curette. From its successful outcome this pioneer effort not only is of historical import, but will stand a lasting commentary on the fearful nature of the affliction which would justify such an extreme procedure undertaken for its relief. From that time to the present many modifications of the operation have been proposed and carried out, all of them having their advocates, all of them having for their objective point the trigeminal neurectomy or removal of the ganglion, so that, so far as the operation itself is concerned, they may all be considered as variations of Horsley's or of Rose's appalling procedure.

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* Presented by invitation at a meeting of the Montreal Medical Society, 1904.

[1] Head: Trigeminal Neuralgia. Allbutt's System of Medicine, 1899, vol. vi, p. 728.

[2] At times very simple measures indeed, of which there is an interesting historical illustration. In one of the old numbers of the European Magazine are reprinted a series of urgent letters which John Locke, the philosopher-physician, wrote from Paris to Mapletoft and Sydenham asking for advice in the treatment of the distinguished patient, the Countess of Northumberland, whom he was attending at the French Court. Owing to "the inclemency of the weather," Locke had refrained from following his first inclination of opening her ladyship's bowels. With a moderation in the temperature and before Sydenham's reply could have been received a purge was administered and the patient's neuralgia disappeared. There is an amusing reference by Lord King in an early number of The Lancet to this correspondence, which comments not only on what must have been the inconveniences of Parisian life in the latter part of the seventeenth century, but also on Locke's clear statement of the case and his skillful treatment.

[3] Victor Horsley: An address on the Surgical Treatment of Trigeminal Neuralgia, The Practitioner, 1900, vol. lxv, p. 251.

In all of these modifications there are two essential factors to be considered: First, the method of approaching the ganglion; second, the manner of performing the neurectomy or of dealing with the structure when it has been brought into view.

METHOD OF APPROACHING THE GANGLION.

The methods of approach may be conveniently classified into three groups: the low or pterygomaxillary route, of which Rose's original operation may be considered the extreme type; the high or temporal route, which is represented by the Horsley and Hartley-Krause operation; and lastly, the direct transzygomatic or sphenoidal route—below, above or through the region bridged by the zygomatic arch.

The first of these methods, through the pterygoid fossa, although considerably altered and improved in details,[4] has never received wide acceptation. The high temporal operation, on the other hand, has almost completely and very properly superseded it, and the larger number of successful cases, both in this country and abroad, have heretofore been carried out on the lines which Hartley and Krause almost simultaneously laid down twelve years ago. Experience with the operative difficulties of the approach, over which hemorrhage, in either of these methods, holds chief sway, the consideration also of the postoperative deformities consequent on either method has led to modifications, the general tendency of which has been to make the low operation higher and the high lower; a tendency in other words toward a more direct or transzygomatic route. Coehlo,[5] in the report of his first operative case, called attention to a modification of the high operation which involved division of the zygoma. Lexer[6] has so circumscribed and lowered the Hartley-Krause opening, with which in its typical form he began his successful series of 15 cases in von Bergmann's clinic, that the details of his method have come to differ but slightly, and chiefly in the management of the meningeal artery, from those which I outlined in 1900.[7] The anatomic studies by Dollinger and Bartlett have shown that the meningeal artery, when this method is employed, in the great majority of cases need interfere in no way with the exposure of the ganglion. Frazier[8] has followed this direct infra-arterial approach in his successful cases of division of the sensory root and many others have been led to adopt procedures which correspondingly are on a more horizontal plane than the older method.

In like fashion, the low or pterygoid operation, has undergone modifications tending to make it more direct. Thus Jacob, Sapejko, Juvara, Quénu and Sébileau, with others, chiefly of the French school, with considerable variation in the incision and in other details, have used a method of approach via the zygomatic region, which, though much more direct than the Rose-Andrews method, nevertheless retains many of the undesirable features of the low pterygoid route, in which the nerves are sought at their exit from the base of the skull, and thus serve as guides to the situation of the ganglion.[9]

MANNER OF PERFORMING THE NEURECTOMY.

There will be found almost as many variations in the manner of dealing with the ganglion when it has been brought into view as there are in the ways of approach. By the pterygoid route it is difficult to conceive of a clean, dry exposure, and the fact that its advocates describe ways of tearing out the ganglion with small hooks and that blind curettage of the supposed seat of the *Cavum Meckelii* has often been resorted to, shows how uncertain must be the actual completeness of the neurectomy. Even when the low approach has been modified to the extent which Juvara's procedure typifies, it is evident from the description, which implies that the ganglion is uprooted by dragging on the second and third branches, that the structure can not be entirely removed. We owe much to Dr. Tiffany for the emphasis which he has laid on "known" versus "attempted" extirpation, and to Dr. Keen for his frankness in acknowledging the failure to find any ganglionic elements in the tissue removed from his first two cases of supposed enucleation. Lexer, in his careful tabulation of the 200 cases which he has gathered from the literature has placed them in two groups—those in which extirpation was accomplished or attempted, and those in which the method rendered this impossible. The majority of the latter cases were operations performed through the pterygoid route.

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[4] Rose: "The Lettsonian Lectures," the Lancet, 1892, vol. i, p. 295. Instead of the superior maxilla, in the modified operation a portion of the ramus of the inferior maxilla is removed; thus allowing of a low lateral instead of a low anterior approach. The latter procedure was first carried out by Prof. Novaro of Genoa.

[5] Coehlo: Revue de Chirurgie, 1899.

[6] E. Lexer: Archiv für klin. Chirurgie, 1902, vol. lxv, p. 843.

[7] The Journal, April 28, 1900, p. 1035.

[8] Frazier: University of Pennsylvania Med. Bull., December, 1901.

[9] Of all these methods that described by Juvara has, I think, most to commend it, and though evolved from the low method, does not differ greatly from that of Lexer or myself similarly evolved as improvements on the high method. His procedure, however, remains somewhat too low; the facial supply to the orbicularis would be sacrificed by his incision and lagophthalmos would almost necessarily result; a sequel which possibly had been overlooked or not taken into account, since at the time of his description Juvara had practiced the operation on the cadaver alone. The extracranial dissection also is carried unnecessarily far, as are those above mentioned, namely, to the second and third divisions at their emergence from the skull, the floor of the temporal fossa alone having been removed. Jacob's operation also was advanced after anatomic studies alone, and when reported had not been put to practical test. He goes so far as to remove the outer wall of the orbit in order to expose the superior maxillary nerve, which then serves as a guide to the ganglion. There are other approaches more difficult to classify, thus, Doyen using a sickle-shaped incision, turns back a large bone flap from the high temporal region, resects the zygoma and coronary process of the inferior maxilla, ligates the internal maxillary artery and rongeurs away the base of the temporal fossa as far as the ganglion. Although the operation is begun as a high temporal one, the ganglion is finally approached via the low pterygoid route, and so ends with all the difficulties and disadvantages of the latter procedure. He designates it, nevertheless, a *"procédé temporo-sphénoidal."* I know of no followers of this method. Two out of his first three cases succumbed to the operation, and it is generally condemned. Poirier uses a similarly complicated approach.

In the earlier years the originators and all others who used the high temporal, or typical Hartley-Krause method, as the communications state, or as the postoperative study of the resulting anesthesia has made clear, satisfied themselves with the partial removal of the lower portion of the ganglion or even with the intracranial division of the *N. maxillaris* and *N. mandibularis*, oftentimes operating at two sittings with a few days interval. Some especially experienced and expert operators, led by the example of Krause, Keen, and Horsley, have subsequently been successful in removing the ganglion *in toto* by this exposure. It can rarely be a simple matter, however. The partial removal of the lower portion of the ganglion, furthermore, although it doubtless may cure a certain number of cases, must be criticized for several reasons. Although in many instances, even of severe neuralgia, symptoms referable to the ophthalmic region may be comparatively slight, it nevertheless sooner or later becomes involved in the disease, and to leave it courts a certainty of discomfort and a probability of pain in the supraorbital region. In two of my cases I was unable to extirpate more than the lower two-thirds of the ganglion. Both of these cases, after some months, have had a partial return of sensation in the cutaneous distribution of the ophthalmic nerve, with more or less attendant discomfort which the total extirpation cases have never shown. Again, some cases are primarily supraorbital in origin, with secondary involvement of the second and third divisions (six of my cases were such), and in these the fractional extirpation would necessarily be insufficient so far as permanent and complete relief is concerned. A partial extirpation, indeed, has been known to aggravate, in the region of the remaining and more or less traumatized first division, symptoms which before were relatively insignificant, although there may have been evidence that the disease had extended to this portion of the ganglion.

Recently Dr. Abbe has advocated a procedure which has for its object the simple intracranial section of the maxillary and mandibular divisions, with the interposition of a piece of rubber protective between the ends of the rami thus severed. Leaving aside the probability that in all severe cases of tic douloureux the ganglion cells giving origin to the *N. ophthalmicus* are likewise involved, it is difficult to understand how this procedure is in any way superior, or promises any greater permanence of relief, than a simple extracranial section; and it is hardly to be considered a Gasserian ganglion operation. Indeed, it probably would make a subsequent operation on the ganglion or on the *N. trigeminus*, should one be demanded, more difficult, and would seem to have less in its favor except ease of performance, than other and extracranial sections of the peripheral trunks. It must be acknowledged, however, that many of the partial operations have an extraordinary effect in inhibiting the transmission of painful impulses, and it is perhaps unjust to criticize Dr. Abbe's proposal without knowledge of his late results. One is inclined, however, to agree fully with Lexer when he says: *"In anbetracht der Gefahren der Operation halte ich es für einen grossen Fehler, das Ganglion wegen Neuralgia in einem oder in zwei Aesten aufzusuchen, auch wenn es mit der Absicht geschiet, es nur unvollkommen herauszunehmen. Krause hat deutlich die richtige Forderung gestellt, dass das ganze Ganglion entfernt werden müsse, sobald überhaupt das intracranielle Vorgehen angezeigt sei."*

The same criticism and the same acknowledgment must be made in regard to a further manner of treating the ganglion after its exposure. Ferrier, in 1890, during a discussion of Rose's operative procedure, suggested on physiologic grounds the possibility that a simple section of the sensory root might answer the same purpose as the destruction or removal of the ganglion itself. Sir Victor Horsley, in his first operation by an intradural method through the temporal route, essayed to carry out this proposal, unfortunately, with a lethal result. Dr. Spiller,[10] in 1898, and two years later Dr. Barker,[11] in a report on the histology of some Gasserian ganglia, again proposed this as possibly the most rational operation. Since then Dr. Frazier, at Spiller's suggestion, has successfully carried out the procedure.[12]

It is possible, should there prove to be a permanent abolition of afferent impulses from the trigeminal area of their patients, that the clinical evidence thereby gained may, as is not infrequently the case, decide a question which experimental physiology has left unsolved, and it is a great satisfaction to know that by the combination of experimental and clinical evidence they have set themselves to determine this point. Conclusive proof as yet is lacking, however, as to whether there is any regeneration centralward after the division of the sensory fibers proximal to a dorsal-root ganglion. Experimental evidence is conflicting, the observations of some[13] favoring such a central regeneration, and unless this view becomes completely overthrown extirpation of the ganglion with all of its cells, can be the only certain method of permanently interrupting the transmission of all sensory impulses.

It is to be borne in mind also that, in all complete extirpations, the trigeminal root is removed together with the ganglion, and that not infrequently, when it has been impossible, for me at least, to expose the root, as would be necessary for its division, it will be extracted *in toto* when the freed ganglion is rotated out. Cases of easy access to the root are usually those of comparatively easy ganglion extirpation.

There is one reason, however, which, so far as I am aware, has not been sufficiently emphasized, and which, rather than ease of performance, would serve to make division of the *N. trigeminus* central to the ganglion preferable to extirpation of the structure itself. This concerns the restoration of motor function. In the extirpation procedure it is an anatomic impossibility to separate from the lower surface of the ganglion the underlying, obliquely placed and closely adherent motor branch of the nerve. Hence, if the extirpation is total, this means the removal of from 2 to 3 cm. of the latter, rendering reunion most improbable. In two of my long-standing cases of extirpation I have found evidence of a return of voluntary motion in the masseter and pterygoids, not, however, in the temporal. This, however, must be very exceptional, as it does not seem to have been observed by others. In the operation for division of the trigeminal root, should this prove, as it is to be hoped, sufficient to permanently shut off afferent impulses by way of the sensory division (*portio major*), the same will not be true for efferent impulses by way of the motor root (*portio minor*), since regeneration here with reunion of the nerve in case of simple section will almost certainly take place. Spiller and Frazier have suggested the possibility and have emphasized the importance of avoiding the motor root in the operation, doubtless a very difficult procedure, and one which so far as ultimate results are concerned, should be unessential. Preservation of the motor supply to the muscles of mastication would be well worthy of consideration for two reasons: one a cosmetic reason,[14] since the chief postoperative deformity is due to a somewhat obtrusive flattening of the face from the atrophy of the temporal and masseter muscles; the other, a remotely practical reason, since, if by any procedure whatever, power of movement may be retained in the masticatory muscles of the side operated on, it would be possible in those unfortunates in whom tic subsequently appears on the opposite side, to carry out, what is now impossible, a bilateral operation. Involvement of the opposite side, however, is a very rare sequence, and has occurred in only one or two instances; almost as rare, indeed, as the subsequent involvement of another posterior-root ganglion in a malady of a different sort—herpes zoster.

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[10] Spiller: The Amer. Jour. of the Med. Sciences, 1898, p. 532.

[11] Barker: Protocols of Microscopic Examination of Several Gasserian Ganglia, The Journal A. M. A., May 5, 1900, p. 1093.

[12] Spiller and Frazier: The Division of the Sensory Root of the Trigeminus for the Relief of Tic Douloureux, etc., Univ. of Penn. Med. Bulletin, 1901, vol. xiv, p. 34.

[13] Baer, Dawson and Marshall: Regeneration of the Dorsal Root Fibers of the Second Cervical Nerve Within the Spinal Cord, Jour. of Exper. Med., 1899, vol. iii, No. 1.

All this discussion, it must be remembered, hinges on the still unproved dictum that no central regeneration allowing of the transmission of sensory impulses will occur after the section of a sensory nerve root proximal to its dorsal root ganglion.[15]

Thus efforts to destroy the ganglion or to remove it piecemeal; simple section intracranially of the second and third divisions with or without removal of the adjoining portion of the ganglion; and section of the trigeminus proximal to the structure, are all either undesirable procedures, or ones which, for the present, at least, stand on debatable ground. Total extirpation alone remains free from criticism, or would, did the anatomic site of the ganglion enable one by any method of approach to remove it with ease. It may be said that, so far as we know to-day, the certainty of total and of permanent relief from pain stands in direct relation to the totality of the extirpation.

Whatever procedure be that of choice, there are two elements which must influence all; one is so far as possible to avoid hemorrhage, both in the method of approach and in that of dealing with the ganglion; the other is so far as possible to evade any postoperative evidences of one's work, either subjective or objective.

In the spring of 1900 the College of Physicians of Philadelphia held a so-called symposium, at which the treatment of trifacial neuralgia was the subject of discussion. At that time was presented a method of approaching the ganglion by a direct, trans-zygomatic, and as it has been called, an infra-arterial method. Influenced by the experience chiefly of Krause and Keen, the endeavor was made from the beginning to remove in each case the entire ganglion. The procedure involved an incision much lower than the Hartley-Krause operation; excision or temporary resection of the zygoma (I was at that time not sure which was preferable); a small cranial opening through the lower part of the temporal fossa without the detail of an osteoplastic flap; and an exposure and extirpation of the ganglion *in toto*, without occasioning injury or necessitating ligation of the meningeal artery. My experience at the time of this report was limited to four clinical cases, although the operation had been practiced and studied out on numerous bodies at autopsy. Previous acquaintance with the ganglion operation, as an assistant or onlooker, always by the high temporal osteoplastic method, with the ligation of the meningeal, etc., had been rather a disheartening one. I had seen in various hospitals several very skillful operators conduct the operation on these lines, and on one occasion had seen a death, as was supposed from hemorrhage, on the table. Difficulties from bleeding even during the approach had characterized all these performances. The Johns Hopkins Hospital experience also had been far from encouraging, as the records showed that two out of four cases had not long survived the operation. Subsequent to the introduction here of the direct operation, a colleague, one of the most careful and expert operators I know, again performed a Hartley-Krause operation, choosing it in preference to the other through past experience with the method. The patient also died within a few hours, presumably from operative hemorrhage and incidental shock. On the other hand, only 1 out of 23 cases in our local experience has succumbed to the operation, which will again be briefly reviewed. I mention these facts merely as evidence that the high osteoplastic operation is in the long run more critical, and even in the hands of those who have had the widest experience with the method, is attended with a higher mortality.[16] It must be remembered also that the majority of these cases only represent an attempted extirpation, and often an operation intentionally confined to the lower two-thirds of the structure. In our series in which invariably the effort has been made to totally extirpate the ganglion, an effort successful in sixteen instances, the mortality has been under 5 per cent. Out of my personal series of 20 cases one was lost on the operating table, as will be described.

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[14] This would, of course, remove the force of my argument in favor of permanent resection of the zygoma in order to lessen these deformities.

[15] Since writing the above paragraphs I have learned that Dr. Sherman of San Francisco has observed a return of sensation and pain in the trigeminal field after the performance of simple root division, an extirpation of the ganglion having subsequently been necessary. Some features of the case, however, such as the extraordinarily early return of sensation, make the observation somewhat inconclusive, and on physiologic grounds leave the completeness of the primary neurectomy open to doubt, although the operator felt reasonably certain of its successful accomplishment. I have learned also that a similar experience has occurred to Sir Victor Horsley. Neither of these cases, however, have been sufficient, in my mind, to overthrow the principles of "no central regeneration" on which Drs. Spiller and Frazier have been working. On no more conclusive grounds has ganglion extirpation itself been claimed to be inadequate, two cases having been recorded of post-operative continuance of pain. Of these cases, Garré's (Archiv f. klin. Chirurgie, vol. lix, p. 379) was confessedly an incomplete extirpation, and in Friedrich's case (Deutsche Zeitschrift für Chirurgie, 1899, vol. lii) pain is said to have returned in four months. Regeneration of the peripheral branches in each of these patients, a condition that could not have taken place without the preservation of some ganglion cells, was evidenced by the relief from pain which was given through subsequent peripheral operations.

[16] The mortality figures may be roughly given as follows: In the first series of one hundred cases, as collected by Tiffany (Annals of Surgery, 1896, vol. xxiv, p. 575), many of which represented cases of the low pterygoid operation, the mortality rate was 22 per cent. In the second series of one hundred cases, collected by Carson (Medical Review, St. Louis, 1899, vol. xxxix, p. 199), the majority of them being high temporal operations by the Hartley-Krause method, the mortality had been 11 per cent. Murphy and Neff, in 1892, collected 42 additional cases with six deaths, 12.5 per cent. Of those having a sufficiently long personal series to deserve mention, Horsley has had two deaths in 21 cases (Practitioner, September, 1900); Krause, in his series of 27 (Münchener med. Wochenschrift, 1901) has lost 7. Two or three of them, to be sure, were cases of late complication, which hardly should be included in the mortality percentages. Dr. Keen's cases, reported in 1898 in the twenty-fifth anniversary volume for Prof. Durante of Rome, were 11 in number, with 3 deaths, 2 of them from operative shock. Dr. J. B. Murphy (THE JOURNAL A. M. A., 1902) likewise records 11 cases with 3 deaths. By the more direct method which Lexer's and my operations typify, the mortality figures, comprising more than twenty unpublished cases, of which I have cognizance, making fifty in all, are below 5 per cent. Lexer and I have each lost one case in our series of 15 and 20 respectively.

It was stated in my earlier communication that the operation differed only in detail from others previously described, but that in observance of detail hung the success of delicate surgical procedures of this sort. Every surgeon has, of course, his more or less personal ways of attacking operative problems, and the familiarity with any given method, that comes from practice, may make easy in one man's hands a procedure which may be unsuited to the needs of another. This is especially true of performances such as that under discussion, for at the best, removal of the ganglion is troublesome, and that so many ways of overcoming its difficulties have been advocated need occasion no remark. Since presenting the method, which at that time and subsequently has proved serviceable for my personal requirements, I have seen at home and abroad several other surgeons operate in other ways, and though indebted to these opportunities for many useful suggestions, the impression has always been conveyed that especially in the method of approach these gentlemen have encountered more difficulties and have run more risks than are usual in the variation I have described.

POINTS REFERABLE TO THE INFRA-ARTERIAL PROCEDURE.

There are certain details of the operative steps as they were first given, which for a moment may be dwelt on; there is no necessity of reiterating their main features, as the salient points remain the same.

Formation of Muscle Flap and Exposure of Temporal Fossa.—The arch of the skin incision has been made considerably lower than indicated in my original drawings.[17] The vertical legs of the inverted U are, however, carried down no farther. This is important in the case of the anterior leg, which should not extend below the external angular process of the frontal bone, else twigs of the *N. facialis* to the orbicularis may be injured. Such a result is almost certain to follow in the procedure, which Juvara has described. The posterior leg, however, may be conveniently carried down as far as the temporal end of the zygomatic arch. It is to be regretted that in this, as well as in any of the temporal operations, be they high or low, the facial supply to the occipito-frontalis (*pars frontalis*) is necessarily sacrificed. This, by planing out all the wrinkles from the forehead on the side of operation, leaves a visible asymmetry of the brow, especially in old people who may possess deep furrows, as these patients usually do. The attempt has been made on the cadaver to work out an approach entirely posterior to the hair margin in order to avoid this sequel, but it apparently only adds difficulties to the already difficult procedure. I have been unable to examine all of my patients a year or more after the operation, but in some of those whom I have seen the occipito-frontalis has, in large measure, regained its function.

The necessity or advisability of resecting the zygoma has been much debated. Whether demanded or not by the particular approach employed, its complete removal, flush with the anterior edge of the temporal fossa as well as with the temporal bone at its point of origin, is, for reasons other than operative ones, distinctly advisable. One of the consequences of removal of the ganglion by any method whatever is a permanent (unless exception will have to be made to this statement in case of motor regeneration after division of the sensory root) unilateral paralysis and consequent atrophy of the muscles of mastication. The late (months) deformity resultant to the atrophy of the exposed temporal and masseter muscles, whose outlines normally round out the face, is greatly accentuated if the arch of the zygoma is left intact or has been replaced after a temporary resection. Its removal has been invariably practiced in all but my earliest cases, and in consequence of this step the deformity in most instances is relatively inconspicuous and only shows as a slight flattening of the face, which a casual observer would pass unnoticed. The zygoma should be shelled out of its periosteal covering and cleanly divided at each end by a heavy pair of bone forceps, exactly as a portion of rib is excised in a thoracotomy. A new and less prominent bony arch is formed, and instead of curving outward, as in its previous condition, lies flush with the somewhat flattened tempero-masseteric surfaces. The pad of fat underlying the temporal fascia, together with the incised fascia itself, should be carefully preserved. The lessening in obtrusiveness of this unavoidable postoperative atrophy has been especially well brought out in one of my cases (Case 7), in whom the temporal muscle had been paralyzed and become atrophied in consequence of a preceding operation on Meckel's ganglion. In this case the zygoma was removed at the time of the Gasserian operation, as a result of which the sunken temporal fossa was so much less apparent as to be commented on by both the patient and his friends. The cosmetic result, with and without removal of the zygoma, may be seen on comparing some of the photographs showing the late postoperative results.

Exposure and Elevation of Dura as Far as the Ganglionic Sheath.—Unless the high temporal route is chosen there is no reason for making an osteoplastic flap in the operation, although many adhere to this time-consuming detail.[18] Only a comparatively small opening in the skull is needed; indeed, there are many advantages attached to the small opening, as will be described, and it subsequently is covered in by the temporal muscle and, more important still, by its firm fascia. If a high-bone flap is made, the line of the craniotomy almost always runs across the deep meningeal groove of the lower angle of the parietal bone and often causes annoying hemorrhage, and if the flap with its temporal muscle attached is turned down over the zygoma the bone is apt to be more or less stripped away from its vascularizing soft parts. Several cases of necrosis consequent to this accident have been reported by Krause and others. If the approach is low and made on a level with the zygomatic arch, the thick covering of muscle and retreating angle of the skull make the formation of the bone flap as difficult as it is needless. In any case, should drainage be advisable, an osteoplastic craniotomy complicates the placing of drains. In the last of his series of cases, although developed from the Hartley-Krause procedure, Lexer has come to regard as unnecessary the preservation of the bone. A mallet and gouge or a burr is for me a much quicker, easier and safer way to make the primary opening in the skull in this situation than by the trephine. The small opening is primarily enlarged by prying up the edges of the thin bone plate with an elevator, and the opening is then essential. The harder the cuticle becomes un- is process the more completely are the underly- ıd unreachable staphylococci covered up and im- ed in the depths of the cuticle.

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[17] This operative method was illustrated and described in detail in The Journal A. M. A., April 28, 1900.

[18] Sir Victor Horsley has from the first, although adopting the Hartley-Krause method in other details, regarded it as unnecessary to preserve the bone. (Practitioner, September, 1900.)

hands would now be sufficiently prepared for a operation, but they may be more efficiently and ably rendered safe for a long operation by l scrubbing and soaking for five minutes eous solution of mercuric chlorid. This destroys germs if it finds any, but it dens the cuticle and forms a sort of of albumin or albuminate of mercury which im- s the germs beneath the surface. The film would ftened and perhaps be worked off during a pro- ed operation were it not that by dipping the hands arms in the mercuric chlorid solution we can for- or renew it every ten or fifteen minutes, and prac- y insure aseptic handling of the tissues during the e operation.

do not approve of mixing up the steps in the prep- on of the hands and arms by using a combination reen soap and alcohol, or by dissolving the mer- chlorid in the alcohol. One substance interferes the best action of the other, and alcoholic solutions ıercuric chlorid have been found to be less efficiently septic than an aqueous solution of the same strength. consider that the practice of covering up the arms ı sterile sleeves is a bad one, because the sleeves are e or less loose and folded, and are apt to touch the stants. instrument dishes and parts of the patient ond the immediate field of operation, and may then ry dirt or germs into the field of operation, particu- ly if the whole hand be introduced into the abdom- l cavity. The bare arms of the operator can feel slightest touch, and he can dip them or wash them the bichlorid solution at any time. This can not be ne to the sleeves, which may touch surrounding ob- ts many times without the knowledge of the operator.

Many surgeons teach that in performing peritoneal ction no antiseptic solution should be touched after ıe peritoneal cavity has been opened for fear of bring- ıg the irritating fluid in contact with the peritoneum. 'his is true with the ordinary preparations for opera- ıon as I have seen them. In order to do this efficiently nd safely as a routine practice, the operator should ıave three basins within easy reach, two filled with varm sterile water and one with a warm 1-2000 mer- uric chlorid solution. In order that the mercuric hlorid shall not harden the blood on the cuticle and interfere with subsequent disinfection. the hands are first dipped in a basin of sterile water to remove the the mercuric solution and then, befo-

the pubes and groins. In the practice of many surgeons who have otherwise good results suppuration of the stitches after the Alexander operation is almost the rule. The reason for this is that the skin about the proposed incision is not properly prepared. The shaving should be carefully done, in order not to produce scratches and abrasions, and the scrubbing not only with soap, but with alcohol or ether, and the mercuric solution should be thorough and prolonged. In plastic operations on the genitalia, the perineum and vagina require the same prolonged, careful scrubbing and the cervix a thorough wiping out and disinfecting. Vaginal douches, although they be prolonged and strongly antiseptic. are not sufficient.

The smallest operation should have the same thoroughness of *preparation as the major ones. Pain or a* rise of temperature should never follow a curettage. That pain, temperature and sometimes serious infection sometimes do follow a curettage is a fact that I have observed in the practice of celebrated surgeons; and I have been particularly impressed by the fact because my assistant caused a great surprise on two or three occasions by telling operators of her acquaintance, who had had trouble after curettage, that we never had either pain or temperature at the Woman's Hospital after this operation. Now. this fact reflected no particular credit on the hospital, for it was only what should follow a proper technic, but it proved to me that by haste, thoughtlessness or, perhaps, by a want of study and of intelligent attention to detail, operators occasionally still are having bad and unjustifiable results. Experience and skill are good, but cleanliness is better, and more careful study should be given to it.

While talking about septic skin, I would like to apply the same reasoning to the dressing of the wounds after operations. Since germs exist in the depths of the cuticle and are prone to come to the surface, they must be rendered harmless after they arrive there. This is best done by the use of dressings that absorb perfectly the discharges as well as the perspiration. Germs require moisture for their development, and perfect dryness is the ideal to be striven after. Occlusive dressings made with collodion favor the development of the native staphylococci in the perspiration, and in the serum and blood exuded about the sutures and retained there. Powders do not absorb well, and they form hard masses or cakes over the wound which allow moisture to accumulate under them. The best dressing is sterilized gauze placed in shreds over the sutures, so that the shreds will be forced down into the depressions about them. and a thick layer of sterile gauze placed over the shreds. After abdominal incisions, such dressings will keep the wound fresh for about a week. Over

OBSTRUCTIONS IN THE RETINAL ARTERIES.*

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In bringing forward this subject for your consideration, I intend to speak only of the three most frequent causes, which are, in the order of their importance, arterial diseases, embolism and spasm. I have not included thrombosis, except as it results from the above-mentioned cause, it being my belief that primary thrombosis in healthy unobstructed retinal arteries is rarely found, while as a complication of the above pathologic conditions it is rarely absent.

For many years following Graefe's publication in 1859, of the first carefully observed and recorded case of obstruction of the central artery by an embolus, most cases presenting a similar clinical history and picture were ascribed to this cause.

During later years, however, the increase in our knowledge of the histologic pathology of the retinal arteries has pointed to obliterating endarteritis and spasm as more common causes of the condition, and has thrown doubt on many cases previously diagnosed as due to embolus, as shown by Reimar. Of the obstructive conditions mentioned, by far the most common and important is arterial disease in its various forms, the most interesting of which for the present study is arteriosclerosis occurring as part of a general arterial degeneration, especially when it takes the form of an endarteritis proliferans. In the light of our present knowledge, it is evident that the majority of obstructive conditions of the retinal arteries may be put under the heading of retinal arteriosclerosis. With the ophthalmoscope it is usually impossible to tell which of the arterial coats is most seriously diseased, so that the diagnosis of arteriosclerosis would seem the most applicable except in those cases of distinct periarteritis, and even here the inner coats are probably more or less diseased. I think that the importance of retinal arteriosclerosis is not ordinarily recognized, and I am sure that it is often overlooked, or, if observed, only given a passing thought, unless of a degree sufficient to cause a gross lesion of the retina, and even then looked on as a progressive disease that treatment will not stay nor alter. There is an old saying that "a man's age is the age of his arteries," and it is a well-recognized fact that the greater the degree and extent of a general arteriosclerosis the more apparent the general evidences of senility. There is no place in the body where arterial changes can be better observed and studied than in the eye, for here, by the aid of the ophthalmoscope, the vessel changes can be directly inspected by the ophthalmic surgeon, who is thus often the first to discover the beginning of general arteriosclerosis, and he should be alive, therefore, to the necessity of advising appropriate treatment.

In the earliest stages, the ophthalmoscopic picture consists of a slight increase in the reflex from the arteries, which makes the contrast between them and the veins more pronounced, and this reflex is often slightly irregular in outline. Slight irregularities in size of the arteries are noticed, and they are more tortuous, especially the macula branches, and a slight congestion of the discs and a feathery outline are often observed. Where the artery crosses above a vein the latter is often compressed, leading to its dilatation and tortuosity distally, and the vein is hidden to a greater extent than the apparent width of the artery, showing that the latter has thicker walls than usual. A little feathery exudate is often seen in places beside the arteries. This should not be mistaken for the opaque nerve fibers often seen running beside the vessels close to the disc. Where the central artery in the nerve is thickened and enlarged, it often imparts a pulsation to the veins which can be seen ophthalmoscopically. All these conditions may be present or only one or two.

When the fundus shows the picture described above, it should be looked on as a danger signal of an advancing arterial disease. In more advanced stages the arteries show still greater increase of light reflex, the silver wire arteries of West, and become much more tortuous, while the unevenness often exists to the extent of a decided beading, the beading showing in the artery and also in the light reflex. Simple tortuosity, however, should never be construed to indicate vessel disease, especially when found in marked hypermetropia with amblyopia. It is in this stage that lesions in the retina appear. A small arteriole becomes so sclerosed as to be impermeable, or its lumen so constricted that the portion of retina supplied by it is not properly nourished and a local edema occurs with subsequent degeneration, and the larger the obstructed vessel the more extensive the retinal change. Hemorrhages often occur from the necrotic vessel beyond a partial obstruction, or following the partial late restoration of a complete obstruction. In other words, the appearances of the early stages of degenerative albuminuric retinitis are produced. There are, indeed, many cases of retinal disease which should properly be called arteriosclerotic retinitis, where the distinctively degenerative condition of the retina results from the retinal arteriosclerosis, itself a manifestation of a general arterial disease, with so slight an involvement of the kidney vessels that no albumin is found on repeated examination and the amount of urea is normal, and it is clearly evident that the arterial disease is primary and not due to uremic poisoning. This was pointed out by Samuel West[1] in his treatise on granular kidney, and more recently by Dr. de Schweinitz,[2] myself[3] and others.

I can not do better at this point than to quote the following conclusions with which Dr. West[4] closes a paper on albuminuric retinitis:

"I may bring this communication to a conclusion by summing up the facts which I think justify the drawing of a sharp distinction between the two forms of albuminuric retinitis, the degenerative and the exudative. They stand in strong contrast with each other in the following respects:

"1. Of the form of disease with which they are usually associated—the degenerative with granular kidney, the exudative especially with the parenchymatous nephritis.

"2. Of their nature and cause—the exudative being inflammatory and probably toxic in origin, the degenerative consequent on vascular changes and more or less mechanical in origin.

"3. Of sight—for the exudative—even in the extreme forms, may recover, with little or no defect of sight, but with degenerative, if there is any impairment of sight, it is usually progressive.

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Samuel West: Treatise on Granular Kidney.
[2] Transactions A. M. A., Ophthalmic Section.
[3] Boston Med. and Surg. Journal, Dec. 10, 1903, vol. cxlix.
[4] Lancet, Aug. 19, 1899.

"4. Of diagnostic value—the exudative being an interesting by-phenomenon of chronic parenchymatous nephritis, an affection the existence of which is obvious enough, while in granular kidney the degenerative often makes the diagnosis certain in cases which have been hitherto obscure.

"5. Of risk to life—for while in both cases it indicates a grave form of renal disease which may of itself prove fatal, in granular kidney it indicates in addition all those dangers to which arterial disease exposes the patient.

"I think, therefore, that the distinction is not only justified by the facts, but that it explains many of the apparent contradictions which are made by different authors."

Small branches often become closed by the obstructive endarteritis, and are at first covered by edematous retina into which they seem to disappear, to show later, after the subsidence of the edema, as white lines. A main branch and its terminals may be reduced to white bands by complete obstruction throughout. A large vessel often has a broken appearance at a point of partial obstruction, and new-formed vessels are seen coming from the proximal portion, giving the vessel a feathery appearance, or more commonly the main branch on the disc gives off a network of new vessels. In fact, the ophthalmoscopic pictures are very varied, and a number of different retinal diseases may have arterial degeneration for their cause, as pointed out by Ole Bull.[5]

The early stages of arterial degeneration require a careful inspection of the upright image for their detection, and as Alleman[6] has so well pointed out in his recent paper, it is this early detection of beginning premature senility that puts us in a position to stay the downward progress. I find that the vascular condition of the fundus can best be studied by using a very bright light of small size and close up to the plane of the patient's ear. The light I obtain by using a Welsbach and an iris diaphragm chimney, with a 1.5 cm. opening.

A branch of the central artery may be suddenly obstructed from a combination of endarteritis and spasm, giving the picture produced by an embolus of a branch. This may happen to the central artery itself, where a partial obstruction by an area of endarteritis proliferans nodosa becomes complete through a lowering of the blood pressure with collapse of the vessel wall and thrombus formation or spasm of the vessel. Immediate blindness results which may be only temporary, if the obstruction becomes again incomplete, or if not the fundus soon shows the classical changes described by Graefe.

Gonin[7] of Lusanne reports an interesting case of sudden loss of sight, where a clinical diagnosis was made of thrombosis of the central vein, but postmortem examination of the eye revealed a very extensive sclerosis of all the vessels. In the arteries the cells of the intima were in a general state of proliferation to the extent that at their origin on the disc the lumen of each of the three main arteries was nearly obliterated. Sections through the optic nerve showed the central artery blocked by a button of dense tissue. This button was found to consist of endothelial tissue and elastic fibers growing by a pedicle from one place in the internal wall and occupying the entire lumen, with the exception of a mere slit.

Hoppe[8] of Cologne, in accounting for a case of sudden obstruction of a branch of the central artery, advances the theory that from a lowering of the blood pressure healthy arterial walls may collapse or be sucked in to the extent of causing a sort of valvular closure, with destruction of the function of that portion of retina supplied. Such a theory seems hardly necessary to explain such cases, particularly in view of the pathologic conditions found in Gonin's case.

E. Hertel[9] examined postmortem the eyes of a number of cases of general arteriosclerosis where sight was not impaired, but where in some cases slight arterial changes showed ophthalmoscopically. The microscope showed two kinds of changes. The first was found in all eyes and all along the vessels, and ascribed to senile changes by Hertel. It consisted in a widening of the lumen of the vessels, with an increase of thickness of the walls. The second kind of change was not general, and consisted of an inflammatory lesion with round-cell infiltration and formation of cellular connective tissue leading to thickening of the vascular walls. Increase of elastic fibers in all parts of the wall occurred, with elastic fibers sometimes projecting into the lumen of the vessels. He thus proves that serious obstructive changes in the retinal arteries, often observable by the ophthalmoscope, may be present in cases of general arteriosclerosis long before the occurrence of defects of sight.

Nettleship[10] thinks that an early stage of granular kidney reasonably may be suspected when decided hyaline thickening of the retinal arteries is seen, and that the suspicion will be much strengthened if the patient be comparatively young.

Dr. John T. Carpenter[11] reports that 6 cases with advanced arteriosclerotic changes died from apoplexy, and that cases showing hemorrhages only were less early fatal than the others.

In connection with this question of arteriosclerosis, the following cases of my own are interesting:

Case 1.—Woman, aged 61, came to my office March 10, 1899, complaining that she could not see as well as formerly.

Examination.—Examination of the fundus revealed the following: O. D. retinal arteries showed well-marked sclerosis with areas of perivasculitis. Many spots of exudate with beginning degeneration and pigment depositing. O. S. showed similar conditions of the arteries and numerous small flame-like hemorrhages were scattered throughout the retina; in other words, a hemorrhagic retinitis existed resulting from the arteriosclerosis. Her family physician was notified of the findings and advised that the kidneys were probably involved, but during the next three years the urine was repeatedly examined and no evidences of kidney trouble found. The patient has followed directions and taken good care of herself, but lately has begun to fail and in January, 1904, her physician reported that the urine showed well-advanced chronic nephritis.

Case 2.—C. W. H., aged 47, machinist, entered Boston City Hospital May 9, 1903, service of Dr. George Sears.

Family History.—Negative.

Previous History.—Negative. Denies venereal diseases; uses no liquor nor tobacco.

Present Illness.—Six or seven weeks ago patient "broke down" and since that time he has been unable to work. Some vomiting at times, but none for past two weeks. Dyspepsia.

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[5] Ole Bull: Diseases of the Retinal Vessels.
[6] American Medicine, Feb. 20, 1904.
[7] Archives d. Ophthalmologie, April, 1903, vol. xxiii, p. 219.
[8] Graefe's Archives, 1903, vol. lvi, No. 1, p. 32.
[9] Trans. Heidelberg Oph. Soc.
[10] British Med. Jour., Dec. 26, 1903.
[11] Oph. Sec. College Phys. and Surgs. of Philadelphia, January, 1904.

For four or five weeks burning pain in rectum. Bowels moved every two or three days. Dejecta containing lumps of feces. Hemorrhoids for years with streaks of blood in stools. Appetite poor.

Present Condition.—Well developed and fairly well nourished. Pale, pupils equal and react. Tongue dry and coated. Pulse equal, regular, good, with tension increased and showing arteriosclerosis. Heart sound and action normal. Lungs, slight dullness of left side of chest, with profuse medium and fine moist râles throughout posterior and lower half of back. Breathing in left side somewhat bronchial. Right lung tympanitic, otherwise normal. Spleen not felt. Abdomen, slight general tenderness; numerous hard, irregular masses, size of walnuts, can be felt scattered throughout. Extremities and reflexes normal.

May 10, 1903. Urine shows pale color; specific gravity 1011, acid, large trace of albumin, no sugar. Numerous hyaline and fine granular casts, renal cells, leucocytes and squamous cells.

May 13. Patient steadily improved in general condition, appears somewhat stupid at times. Practically no cough or expectoration. Hemorrhoids have gradually and entirely disappeared. Considerable difficulty in controlling the urine and feces. Knee jerks lively.

May 17. Mental condition does not improve. Frequently repeats answers to questions over and over again. Has a peculiar laugh.

May 27. Steadily failed since last note. Passed dark clotted blood by rectum, vomited several times, small ulcer appeared on right shoulder. Swelling, redness and tenderness of glands of right side of neck. Patient sank into a stupor and became comatose and died at 1:30 a. m. May 27.

Blood Examination.—May 9, 125,600; hemoglobin, 75 per cent. May 11, 118,600; hemoglobin, 75 per cent.

Dr. E. Stanley Abbott, alienist, examined the patient and made a probable diagnosis of incipient general paralysis. I examined the patient's eyes a few days before death and found a marked neuroretinitis amounting to choked disc with exudates about the discs and maculæ, and arteries sclerotic.

This case illustrates the exudative type of retinitis, where retinal lesions due to the arteriosclerosis are largely masked by the exudates resulting from the uremic condition. The choked discs evidently resulted from the extreme distension of the nerve sheaths, which was found to exist on removing the eyes. Whether this patient had arteriosclerosis prior to the kidney disease can not be told by postmortem evidences. The autopsy showed very marked arteriosclerosis, and particularly of the small brain arteries.

AUTOPSY.

May 27, 1903. Body, Dr. Roberts; head, Dr. Southard. Nine hours postmortem. Age, 47 years. Body of a well-developed, poorly-nourished man. Rigor mortis present. Slight lividity of dependent parts. Pupils equal, 5 mm. in diameter. No edema.

Peritoneal Cavity.—Surfaces smooth and shining. Appendix 5 cm. in length, free, provided with mesentery throughout and points upwards and inwards. Mesenteric lymph nodes not enlarged. Diaphragm reaches to the fifth space on the right; same on left.

Pleural Cavity.—Strong fibrous adhesions bind down lower lobe of left lung laterally and posteriorly.

Pericardial Cavity.—Surfaces smooth and shining. A few milk patches beneath visceral pericardium. Normal amount of fluid.

Heart.—Weight, 490 gms. Valves: Cusps of both aortic and mitral valves show some thickening. Pulmonary and tricuspid valves normal.

Measurements—

Tricuspid valve	13 cm.
Pulmonary valve	8 cm.
Mitral valve	10 cm.
Aortic valve	9 cm.
Left ventricle	2.5 cm.
Right ventricle	.75 cm.

Fresh section shows no fat.

Coronaries.—Both coronaries show marked degree of sclerotic change.

Lungs.—The apex of each lung exhibits areas of puckering, which on section are found to be composed of dense fibrous tissue. Besides these are a number of hard nodules. Lower lobes of each lung dark red on section, and slight pressure brings forth considerable frothy fluid.

Spleen.—Weight, 130 gms. Capsule wrinkled, dark purple in color. Section dark purple, and trabeculæ are increased.

Gastrointestinal Tract.—Colon shows numerous ulcers, some of which are very large, extending for several centimeters; others smaller. Bases of these are grayish in color, covered with a dark chocolate colored material. Besides these ulcers are a number of small, slightly raised areas, averaging 2-3 mm. in diameter.

Pancreas.—Normal in appearance.

Liver.—Weight, 1,700 gms. Capsule smooth. On section surface normal in appearance. Lobules not easily made out.

Kidneys.—Weight, 240 gms. Capsule strips with difficulty, leaving behind a roughened surface. Section pale; not made out. Fresh section shows considerable fat.

Adrenals, Bladder and Genital Organs.—Normal in appearance.

Aorta.—Shows marked arteriosclerotic changes.

Head.—Scalp normal. Cranium thin without diploë. Dura normal, without adhesions. Sinuses filled with chicken fat and cruor clot.

Brain.—Weight, 1,500 gms. Pia over a few sulci, especially at junctions of sulci, shows thin white streaks of old fibrous thickening. Pia in the main normal. Vessels slightly injected. Subpial space contains a slight increase of fluid. Brain substance firm and of normal appearance. The walls of the ventricles stand rather firmly open as if from a moderate permanent dilatation. There is from 15 to 20 c.c. clear fluid in each ventricle. There is no sign of chronic change except in the accessory sinuses of the fourth ventricle, which show a coarse, sanded appearance. Two small pea-sized cysts of softening with pale, irregular walls and semigelatinous contents, occur, one in the outer posterior portion of the left lenticular nucleus in the plane passing through the anterior poles of the optic thalami; the other in the central portion of the pons, apparently cutting off a few pyramidal fibers, but chiefly pontine commissural fibers. The vessels at the base show well-marked and very evenly distributed yellowish thickenings, but are apparently everywhere pervious. The sclerosis extends into the smaller branches and may be followed as far as the annectent gyri. The eye grounds show chronic changes, equal on both sides. Hypophysis normal.

Middle Ears.—Normal.

ANATOMIC DIAGNOSES.

Chronic diffuse nephritis.
General arteriosclerosis.
Hypertrophy of heart.
Sclerosis of coronary arteries.
Healed tuberculosis of lung.
Chronic hemorrhagic enteritis.
Follicular enteritis.
Chronic fibrous pleuritis.
Subpial edema: chronic internal hydrocephalus, slight subpial edema.
Chronic fibrous leptomeningitis (moderate).
Chronic ependymitis of accessory sinuses of fourth ventricle.
Small old cysts of softening.

MICROSCOPIC DESCRIPTION.

Heart.—The coronary branches show marked intimal changes, both proliferative and degenerative. The intima with the fatty central zone may be from 1 to 2 mm. thick. No branch seems completely occluded.

Lung.—The smaller vessels show intimal thickening. There are in a section several dense fibrous areas with old pigment collections and foci of lymphoid cells. The fibrous areas are sometimes continuous with the peribronchial tissues. Many of the alveoli are collapsed and many contain pigmented phagocytes.

Spleen.—Hyaline changes in media of arterioles of malpighian nodules. Reticulum of pulp prominent. Pulp injected. There are very numerous pigmented cells. Scattered through the pulp are numerous polynuclear leucocytes.

Liver.—Not remarkable. Slight collections of lymphocytes in periportal connective tissue.

Kidney.—Capsule thickened. Vessels show thick intimal proliferation. About the vessels is much dense fibrous tissue, fairly rich in nuclei. There is much diffuse overgrowth of fibrous tissue in the cortex, associated with tubule atrophy and destruction and various grades of glomerular change advancing to complete fibrosis. There are a few casts in the collecting tubules. It would be difficult to deny that the whole cluster of changes in the kidney is a product of the arteriosclerosis.

Dr. E. E. Southard, who has been of great assistance to me in this case, writes to me regarding such cases as follows:

"It seems to be impossible to prove in many cases, in respect to kidney lesions themselves, whether conditions to which the name of interstitial nephritis can be given are produced by sclerosis or by primary (unknown) proliferative changes of the interstitial tissue; but it is probably accurate to say that in the kidney, either change may initiate the other: thus that vascular changes may follow the interstitial and vice versa. I don't know that this throws any light on your problem of the eye changes and their significance; but it would seem, could we look into the kidney as into the eye, that there would still be some doubt as to the significance of vascular changes which might be visible."

Case 3.—Seen Feb. 13, 1904, in consultation with Dr. C. F. Moulton. Male, aged 50, school teacher, has been in poor health for several years.

History.—His physicians have several times examined his urine without finding albumin. For about a year the sight of the right eye has been failing, and he has had frequent attacks of sudden blurred vision of that eye lasting from a few minutes to an hour. During the past few weeks the sight has been poorer in that eye, and he has noticed a partial loss of field of vision, which defect is well shown by the field chart taken by Dr. Moulton (Fig. 3). The patient looks and acts like a man enfeebled by age. He is apathetic and his memory is very poor.

Examination.—The right eye shows the following interesting picture at the fundus: There is a sclerosis of all the retinal arteries, with the inferior temporal branch reduced to a white band, the obliteration of its lumen commencing at the edge of the disc. Just beyond this the vessel has a rounded appearance, but it soon changes to the flat band-like appearance seen more distally. The patient is of dark complexion with abundant retinal pigment, so that the obliterated artery stands out white and glistening against the dark background, and even the small branches can be seen as little white threads. The portion of the vessel on the disc shows thickened walls and a tiny stream of blood in the lumen, coming to a sharp point at the edge of the disc. Coming from this portion of the vessel are several new formed arterioles and the central two-thirds of the disc, especially the lower part, is partly hidden by an anastomosing network of new formed vessels, from which new vessels can be seen running on to the retina, a distance of a disc diameter or a little more. I have never before seen so marked a network of new formed vessels.[12]

The upper temporal artery also shows obliteration from just beyond its second branch out, giving it the same white band-like appearance. The second branch of this vessel, which runs down and to the temporal side of the macula, becomes partly obliterated soon after leaving the parent vessel, and its distal portion is surrounded by a wide area of white edematous retina which buries the vessel except in spots. Just below the macula there is another white area of edematous retina at the tip of one of the branches of the vessel first described. Between the disc and the macula, but nearer the latter, are two small spots of degenerated retina. The following sketch shows the conditions described (Fig. 4).

The left eye shows only a very slight arteriosclerosis and this, to my mind, is another evidence of the assertion that such cases are to be studied from the standpoint of primary arterial degeneration, which, as is well known, may vary greatly in different locations, while it has been my experience that the extensive inflammatory degenerations of the retinal and choroidal vessels resulting from the uremic poisoning of advanced chronic nephritis affects both eyes in nearly equal degree. Dr. Moulton has recently informed me that after two months' treatment with potassium iodid the patient's physical and mental condition has improved greatly and the visual field has changed slightly as shown in Fig. 5. Eye massage was also used.

Case 4.—E. G. W., aged 53, seen Jan. 23, 1902; has never had any trouble with his eyes until day before, when at 9:30 a. m. he suddenly became aware that he could not see the left half of any object he looked at.

Examination.—Examination revealed a complete loss of the left fields, even to light perception. The onset of this hemianopsia was not accompanied by any other sign of cerebral disturbance than a dull feeling head and the patient was able to finish his day's work, though much inconvenienced by his half vision. The ophthalmoscope reveals a moderate degree of sclerosis of the retinal arteries, with a few spots of degeneration in the macular regions. His urine showed a very slight trace of albumin. In two weeks the blind fields had recovered a hazy vision and in three weeks more the fields were perfect except for colors.

I saw this patient again April 16, 1904, and found no field defects whatever. The fundi showed slight increase of the arteriosclerosis, with a fresh hemorrhage in the right eye near the disc. His mental and physical condition, however, was much reduced, and he styled himself "a walking sick man."

In view of the fact that the retinal endarteritis probably indicates the same condition existent in the cerebral arteries, is it not possible that the cerebral disturbance which caused the hemianopsia may have been precipitated by a spasm of the cerebral artery supplying the portion of brain involved? The fact that no other symptoms of cerebral apoplexy appeared, and that the hemianopsia disappeared so quickly, would tend to support such a hypothesis.

Case 5.—Mrs. G. A. M., aged 67, was seen May 1, 1904, and the following history obtained:

History.—Eighteen months ago a blur came before the right eye, and the optician consulted made a diagnosis of albuminuric retinitis. The urine was examined by an expert chemist and pronounced normal. She then consulted an oculist, who told her that there was a hemorrhage in the retina of the right eye. Since then the sight in that eye has failed, and during the past six months the sight of the left eye has also been greatly reduced.

Examination.—V. O. D. = p. l., v. o. s. = counting fingers at 6 inches. The ophthalmoscope shows a most extensive arterial and venous degeneration. Many of the arteries in each eye are reduced to white bands running across areas of exudate and degenerated retina. The nerve head is hidden by swelling and exudate and there are hemorrhages scattered all over the fundus. Most of the hemorrhages seem to be from the veins. It is apparently a case of very extensive vessel sclerosis without very serious involvement of the kidneys. The urine on examination still shows free from albumin or sugar.

I have at present several patients under my care who have well-marked retinal arteriosclerosis, with degenerative retinitis, with little or no albumin in the urine, who have already lived beyond the allotted two or three years.

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[12] Particular attention was drawn to this condition of new vessel formation by Hugh Thompson in his recent articles on obstructions of the central artery. Ophthalmic Review, 1902, March and April.

It is well known that the changes in the retinal arteries described above are evidence of general changes which eventually result in death, yet very little is commonly done in the way of treatment.

I would urge ophthalmic surgeons and general practitioners to be alive to the necessity of advising appropriate treatment in the early stages of this disease, when I am sure so much more can be done than is generally supposed. We can all remember when patients with phthisis pulmonalis were looked on as not requiring other treatment than that necessary to make their few remaining months comfortable, and physicians spent very little time in studying each case with hope to cure or greatly lengthen life. It is not to be expected, however, that so much will be accomplished in staying the progress of arterial degenerations as has been done with phthisis, the differences in average of age preventing, but the obligations to do all we can for these cases is just as imperative.

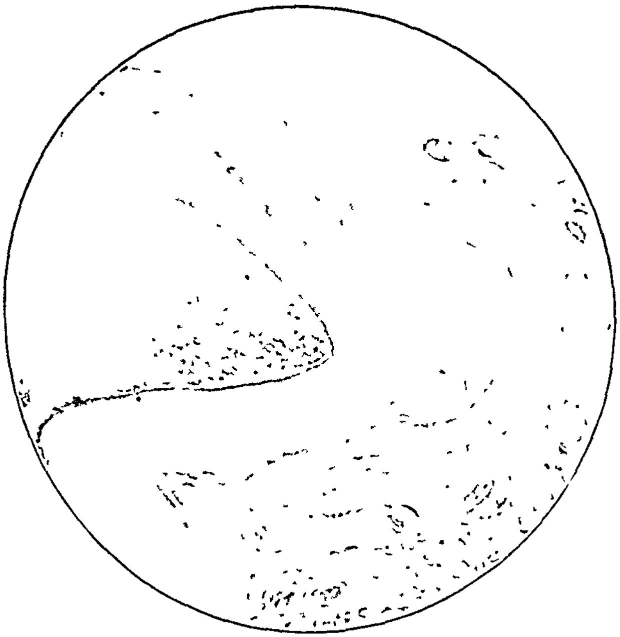

Fig. 1—Sylvian artery from Case 2, showing marked thickening of the intima with a break in the elastica.

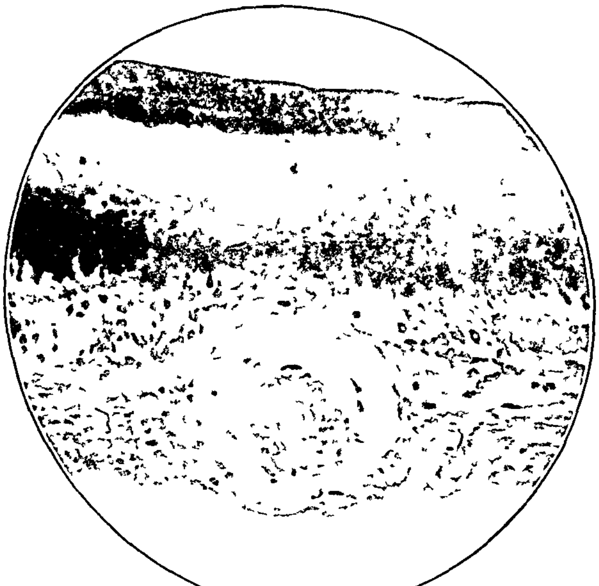

Fig 2—Section from a case of Dr. Verhoeff's, showing marked thickening of the intima of a main branch near the disc.

That the rush and hustle of our modern American business and social life is conducive to early arterial degeneration, is a well-established fact, and this, with the predisposing influences of heredity, rheumatism and the infective diseases, especially syphilis, constitutes the principal causes of obstructive arterial disease other than the cases distinctly resulting from the uremic poisoning of a kidney lesion, which is usually of a parenchymatous type.

From the brief suggestions here offered as to the causes of retinal arteriosclerosis, it is evident that the treatment consists largely in regulating the patient's mode of living, especially as regards the avoidance of over nerve strain and all excesses. The very best advice to such patients is to live moderately in every way, and to keep the processes of digestion and elimination as normal as possible. The details of the regulating treatment, of course, must be such as each individual case calls for. In addition, it has been my custom to advise the long-continued use of iodid of potash in small doses.

EMBOLISM.

The plugging of a retinal artery by a floating particle which usually comes from diseased heart valves or a heart thrombus, is occasionally seen, and if the plug is stationary in a central artery, we have the sudden loss of sight with the fundus changes so ably described by Graefe, which do not need reiteration at this time.

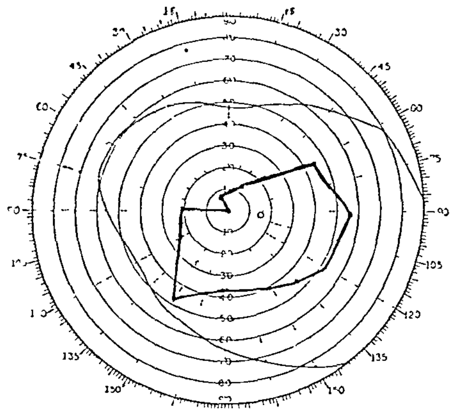

Fig. 3—Right eye. Feb 13, 1904.

I am inclined to the theory that ascribes the cherry-red macula to the contrast offered between the very thin and non-edematous retina of this region with the color of the choroid showing through, and the white edematous surrounding retina. I have several times seen a central retinal separation which shows the bright red macula contrasted with the gray surrounding portions, simulating the picture produced by embolism.

Dr. Verhoeff[13] has published a case which gave the fundus appearances of embolus following optico-ciliary-neurotomy, where the cherry-red macula was due to a hemorrhage, and he suggests this as the cause in some cases. The embolus may be a foreign substance introduced into the circulation, such as paraffin injections used in reducing nasal deformities, as shown by the case of Hurd and Holden.[14] In this case, the question has arisen how an embolus large enough to obstruct the central artery could pass through the lungs. That the capillaries of the lungs would allow quite large particles to pass through is shown by the cases of fat emboli of the vessels of the brain, following fractures of the tibia or femur, and it might be possible that fat emboli could occur large enough to stop in the central artery of the retina, and Virchow showed by experiments that a foreign body will cause contraction of the arterial walls at the point of lodgment and thus complete the obstruction.

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[13] Reference Handbook of Medical Sciences.

[14] New York Medical Record, July 11, 1903.

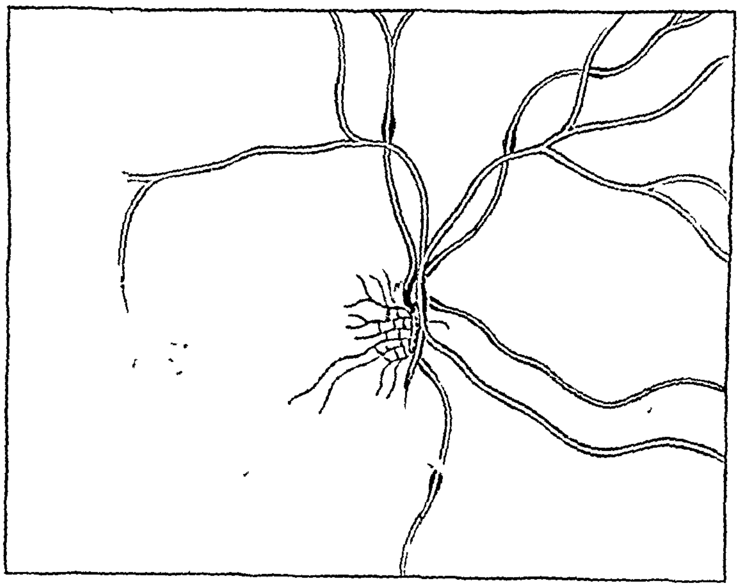

Figure 4.

The following case of embolus, in the superior nasal branch, is interesting in this connection:

Case 6.—Mrs. R. L., aged 29, has had no previous trouble with eyes and no premonitory symptoms. While walking on the street she suddenly noticed a blur come before the left eye, which rapidly increased, and on covering the right eye, she could see but little with the left, and not at all in a direction downward and to the right. I saw her seven hours later and found the following: O. S. V. = 20/200, the fundus shows a whitish, clouding of the retina, limited sharply to the upper temporal quadrant and starting at the disc. The upper temporal artery reduced to a mere thread and partially buried in the white edematous retina, the visual field shows the defect corresponding to such a loss of retinal function and is shown in the chart below.

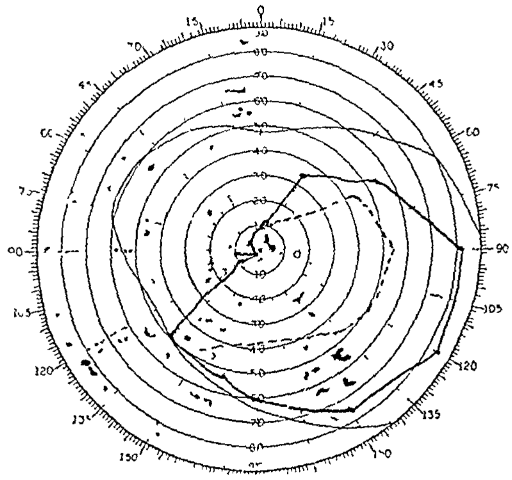

Fig. 5.—Right eye. Dotted line February 13, continuous line May 7.

Examination.—On examination of the patient, I found that she had well-marked mitral and aortic endocarditis. She was put to bed and given nitroglycerin and the eye massaged during inhalation of nitrite of amyl. During the next two or three weeks the retina gradually recovered its normal color, but the defect in the field remained. Examination three weeks after first visit showed a plug in the upper temporal branch extending from the point of bifurcation of this branch and the nasal branch at the center of the disc, to nearly the edge of the disc. From this point on the artery contained a small amount of blood, but was only about one-third the size of the other main branches. There were no signs of arterial disease and the clinical history and fundus picture would point quite conclusively to embolus as the cause of the arterial obstruction.

June 1, 1904. The upper temporal artery was a mere thread and the optic disc was atrophic. F. V. as before.

Treatment of embolism is probably rarely instituted in time to save the functions of the retina. The use of nitroglycerin, nitrite of amyl and deep massage should be tried as soon as possible after discovering the condition, with the hope that the plug, if situated in the central artery, may be carried as far into one of the branches as possible, and thus reduce the field defect to a small area. If, in a suspected case of central embolism, there should be a complete restoration of the retinal function, it would point to a diagnosis of spasm rather than embolus, it being inconceivable that an embolus large enough to stop temporarily in the central artery could pass to so small an arteriole that no retinal defect would be produced.

E. Stoke,[15] in December, 1903, published a case of simultaneous bilateral embolism of the central arteries with complete recovery in a few days, occurring in a man of 80 who had marked atheroma. One, I think, is justified in hesitating to accept such a diagnosis at the present time, and feeling that some disturbance in the blood or circulation may have precipitated a temporary spasm, causing the sudden loss of vision.

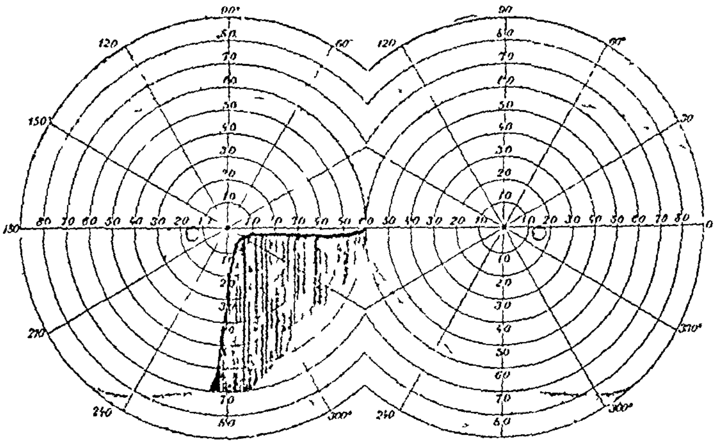

Figure 6.

I doubt if paracentesis and evacuation of the anterior chamber will do more than nitrite of amyl and deep massage.

SPASM.

That spasm of the retinal arteries may occur of sufficient degree to cause a temporary partial or complete obstruction to the flow of blood seems proven beyond a doubt. It has been the good fortune of several observers to see patients during an attack of spasm of the retinal vessels, where, for a few minutes, the arteries were reduced to yellow streaks, with subsequent restoration of the circulation. Such patients give a history of more or less frequent attacks of complete or partial blindness of one eye, lasting from several minutes to an hour or two.

Case 3, described above, gives such a history, and there were evidently attacks of spasm preceding the final complete obliteration of the inferior temporal artery. It is my belief that spasm occurs most frequently in the early stages of arteriosclerosis, and should be looked on as a warning of future obliterating endarteritis.

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[15] Med. Wochenbl., Dec. 26, 1903.

Wagenman's[16] classical and frequently observed case of repeated spasm finally had a spasm that was not relieved, and the arteries remaining closed, the picture of embolus was produced. I doubt if a more than very temporary spasm occurs in healthy vessels with normal blood, but that patients with retinal arteriosclerosis complicated by recurrent attacks of spasm are in special danger of blindness is evident.

Virchow many years ago pointed out the fact that the arterial walls would contract around an embolus, thus making an obstruction more complete. This contraction or spasm was only temporary, and it is only rational to expect that it would be a frequent and recurrent accompaniment of endarteritis.

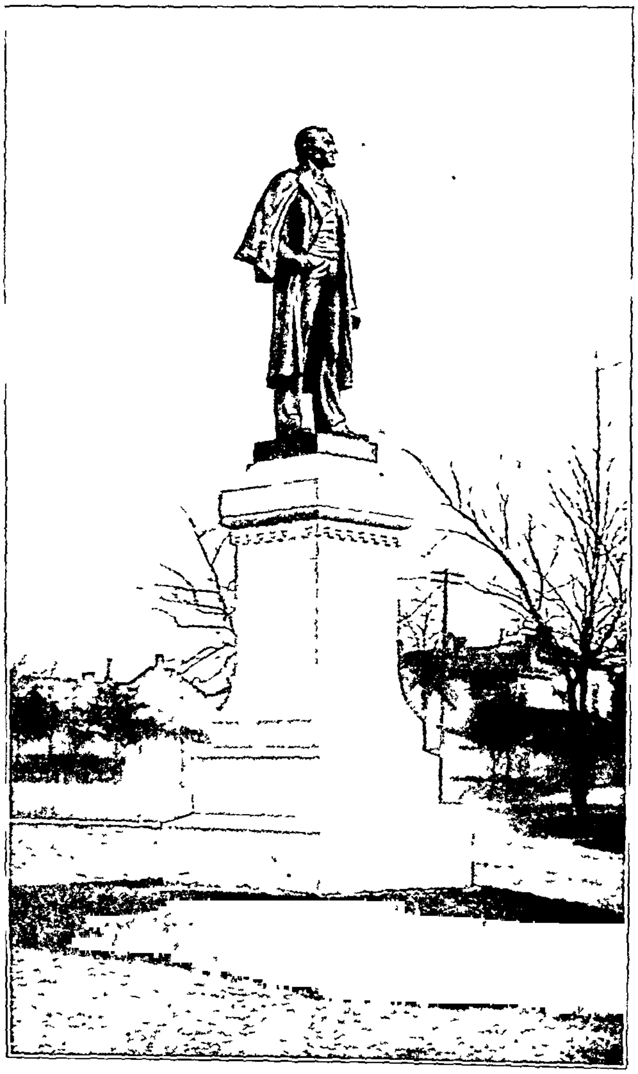
Zehender was the first, according to Ole Bull, to call attention to arterial spasm, and in 1866 he published a case of repeated spasm of the retinal arteries following the repeated use of an ice-bag.

The treatment outlined for retinal arteriosclerosis should be followed even more carefully where occasional spasm occurs, and when the patient is suffering from an attack, nitrite of amyl may be used to abort it.

DISCUSSION.

Dr. John E. Weeks, New York City, stated that the retinal arteries sometimes show conditions somewhat analogous to arteriosclerosis when sclerosis is not present; one of these conditions is perivasculitis, the white line along the artery is pronounced, but uniform, and there is no lessening in the caliber of the vessel; another is atrophy of the vessels, which only occurs, of course, where we have atrophy of the retina, the white line is appreciable, the caliber is reduced, but the reduction is uniform; another is anemia of the arteries, where the caliber is also reduced. In cases of arteriosclerosis the small vessels and the capillaries of the retina are most profoundly affected. In the larger vessels affected the muscular coat as well as the intima is involved. The caliber of the vessel is reduced, the reduction being irregular. It is possible that spasm might occur where the elasticity of the vessel-wall is still retained, but not otherwise. Dr. Weeks believes that the exudation at the macula resembling albuminuric retinitis may be due to the fact that the general arterial change is more marked in some parts of the body than in others and that the retinal vessels in these cases suffer before the vessels of the kidneys are affected. Finally the vessels of the kidneys will become involved also. In a non-edematous, thin portion of the retina, namely, at the fovea centralis, the vessels of the choroid shine through, but, where there is destruction of the ciliary arteries, we have the edematous appearance at the posterior pole of the eye, as in embolism, but no red spot, because there is no blood in the capillaries of the choroid. Ordinarily, however, a pigmented spot is seen, the pigment of the choroid.

Dr. Allen Greenwood said that among the cases he reported he put a number where the sclerosis of the retinal arteries was present several years before the condition existed in the kidneys in sufficient degree to cause albuminuria, but in all such cases he has seen the kidney lesion appear sooner or later. The appearance of sclerosis in the retinal arteries occurs so frequently in the early stages that such cases must be separated from those in which the retinal changes are due to uremic poisoning. The great danger is subsequent involvement of the kidneys. There is no question but that such patients will probably die of uremic poisoning unless carried off by some intercurrent disease or cerebral hemorrhage. In one of his cases the process has gone on until there is only light perception and as yet no disturbance of the kidney function whatever.



THE DAVIS MONUMENT.

This statue of Dr. W. E. B. Davis was unveiled Dec. 14, 1904, in Capitol Park, Birmingham, Ala., with fitting ceremonies, by the members of the Southern Surgical and Gynecological Association and by the public. The exercises were public, and thousands of people to whom the lamented surgeon was a familiar figure in Birmingham were present on this memorable occasion. For report of exercises, see The Journal, January 7, page 58. For an obituary of Dr. Davis, see The Journal, Feb. 28, 1903, page 595, and March 7, 1903, page 660. The monument is executed in bronze, and is of heroic size, standing nearly nine feet high. The inscription on it is as follows: "Memory of William Elias B. Davis, surgeon. Erected by the Southern Surgical and Gynecological Association, which he founded in 1887. Secretary, 1887-1901; President, 1902. 'He would have been known to the world as a patriot had he not been known as something greater—a physician.'"

Shall I Operate?—Billroth, in a letter to a Russian surgeon, said: "Before deciding on the necessity for an operation I always propose to myself this question: 'Would you permit such an operation as you intend performing on your patient to be done on yourself?' Years and experience bring in their train a certain degree of hesitancy."

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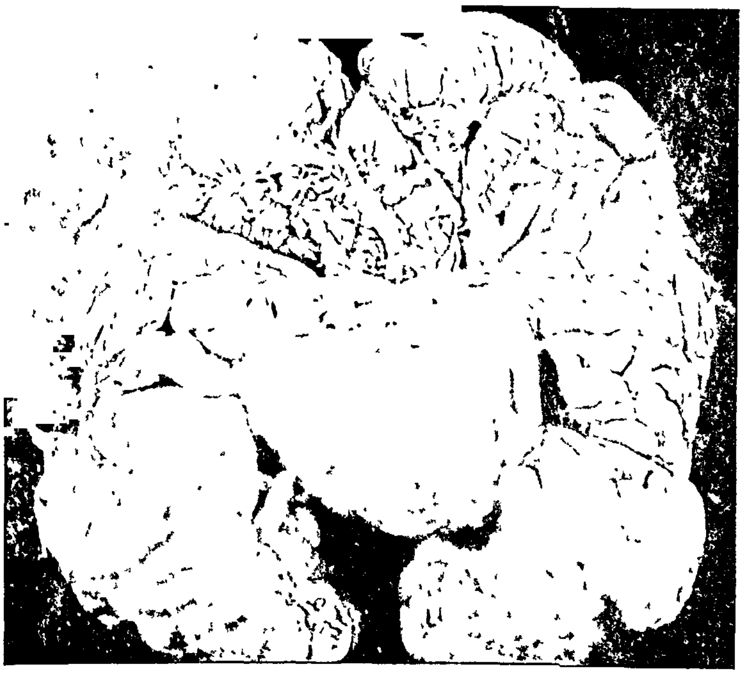
[16] Trans. Heidelberg Oph. Soc., 1897.

A CASE OF BRAIN TUMOR WITH PROGRESSIVE BLINDNESS.*

W. C. KENDIG, M.D., and D. I. WOLFSTEIN, M.D.
CINCINNATI.

The following case is deemed of sufficient interest to report on account of its very protracted course and the occurrence of the condition resembling dementia, which rendered the diagnosis of brain tumor very difficult. Dr. Kendig, who had the case under observation in its last stages, reports the following clinical history:

Patient.—J. A. was admitted to Longview Hospital Dec. 12, 1903, with practically no history except that he had been insane for eight months previous to the time of admission, this being his first attack of insanity. The patient died under our care and the case was reported at the meeting of the Cincinnati Neurological Society, when Dr. F. W. Langdon remembered having seen the patient in 1897, and I am indebted to him for the notes of his examination made at that time—July 17, 1897: Age 52, single, occupation, traveling salesman. There are notes about his personal appearance and family history which are not reported, as they present no bearing on the subsequent history of the case.



Personal History.—The patient had the diseases of childhood and contracted at the age of 22, 30 years ago, a luetic infection for which he was given thorough treatment at that time. There is a history of liberal use of tobacco since his eighteenth year, and up to his twenty-second year alcohol was used. The patient is emotional, quite voluble in speech; the speech is in no way impaired. His vision has been failing for the past two years. There is a double optic neuritis.

Motor System: Shows no impairment. There is neither palsy, rigidity nor ataxia. There is a slowness of speech, slight facial tremor, but no rigidity, ataxia nor loss of power; the ocular muscles are intact.

Sensory System: There is no anesthesia, reflexes are active, no disturbance of sensation. The sphincteric function is healthy. The diagnosis at this time was possible paresis, together with progressive optic atrophy. From this time on until he came under my care at Longview he gradually grew worse, physically as well as mentally. There had been progressive loss of vision until only daylight could be distinguished from darkness. On admittance, Dec. 12, 1903, he weighed 180 pounds, but showed the effects of a long confinement. He eats and sleeps well, pulse 68, but the arteries are hard and tortuous with some cardiac enlargement; there is incontinence of urine and feces. There had been no vomiting, headaches, vertigo, and no convulsions. Mentally there is a general feeling of well-being, with a tendency to grandiose ideas; he takes no interest in past affairs and is always happy and contented. There is marked dementia. The knee jerks are slightly exaggerated on both sides, but there is neither ankle clonus nor toe extension. The sense of smell seems to have been intact a short time before death, for he appreciated the aroma of a good cigar. However, on account of his demented condition, it was never possible to obtain satisfactory data with regard to this function. He was subject to periodical attacks of diarrhea, and during one of these attacks he became unconscious and died 48 hours later.

The autopsy was made at the institution by Dr. Mann and Dr. Kendig, and the brain, including the tumor, was given to Dr. Wolfstein for further examination. The accompanying photograph shows the site of the tumor. The autopsy was reported by Dr. Wolfstein.

Autopsy.—At the base of the brain there is a very marked arteriosclerosis of the vessels of the circle and of their smaller ramifications. A very large globular and nodular tumor occupies a position so that a depression has been hollowed out in the region of the infundibulum and the optic chiasm. The optic nerves have been so pressed on as to cause their practical disappearance, but the cranial nerves are intact. The olfactory tracts are present, but show distortion and are small. The site of the tumor is such as would cause complete blindness by destruction of the optic nerves themselves, although the tracts behind the chiasm are intact. The arteriosclerosis was quite extreme and there was evident interference with the healthy function of the cerebral tissue. The tumor was not adherent and could be shelled out from its depression without difficulty, and presented the type of vascular small-celled sarcoma. The tumor was of interest as showing a progressive development over a term of years without the occurrence of any of the general symptoms of brain tumor except blindness and optic neuritis.

A CASE OF VERY LARGE TUMOR OF THE FRONTAL LOBE. OPERATION; DEATH.*

PHILIP KING BROWN, M.D.
SAN FRANCISCO,
AND
W. W. KEEN, M.D.
PHILADELPHIA.

MEDICAL HISTORY BY DR. BROWN.

Patient.—Miss R. M., aged 19 years and 3 months, was first seen by me June 10, 1903, in consultation with Dr. Smiley, her family physician.

History.—In March, 1903, she had a bilious attack with vomiting similar to attacks that she frequently had had either from overeating or from overfatigue. She was somewhat run down at the time of this attack, which was followed by a period of indigestion. She vomited some bile, the vomiting bearing very vague relation to eating. Two weeks later a paralysis of the left external rectus was noticed and there developed slowly an apparent paralysis of the right external rectus. During the early part of the month of March she did considerable fine hemstitching out of doors while driving. This time for doing it was chosen in order to avoid its being known. During April and May she was under the care of Dr. Smiley, who considered her circulation out of order on account of a rapid pulse and cold extremities, for which he used massage and electricity. Her father states that she had always had a rapid pulse. After April 1 there were several recurrences of the so-called bilious attacks, but the patient was not nauseated excepting during these attacks. There was no constant headache, though she complained of some neuralgic pain and stiffness in the left occipital region and left side of the neck posteriorly. Occasionally she had some left supraorbital neuralgia, which was attributed to eyestrain. Her temperature was often subnormal.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

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Examination.—June 10. Pulse was 90, volume and tension low; rate and force irregular. Her heart and lungs seemed to be normal. There was no history of cough. Sensation was normal all over the body. The face was examined with particular care. She appreciated heat and cold equally well. Hearing was acute on both sides. The sense of smell was absent in both nostrils and she said that it had been absent from the very beginning of her attack. The field of vision roughly estimated was certainly contracted, slightly more, perhaps, in the left eye than in the right eye. She generally kept her left eye closed on account of the diplopia, but the vision was equally good in both. Examination of the eyes on May 18 by Dr. J. H. Philip had shown vision 20/15 with the eyes used separately. There was a distinct failure to appreciate colors. She did not recognize blue and the Tallquist hemoglobin card seemed to her to be equally dark throughout and she could not tell its color. The right eye was used most of the time, her hand being kept over the left eye when talking to anybody or when looking about. She preferred to lie down most of the time, though she could be persuaded to walk some distance, but muscular exertion was not undertaken voluntarily. Her gait was absolutely normal. There was no Romberg symptom; there was no loss of stereognostic sense and no failure to appreciate the position of her extremities during passive movements. There was no inco-ordination in the upper or lower extremities. The knee jerks were equal and lively. The pupils reacted to light and to accommodation. No muscle of the left eye seemed to be involved except the external rectus. On closing the left eye it was impossible for her to use the external rectus of the right eye normally, but she *appeared to use the other muscles perfectly.*

July 14: During the previous week there had been apparently a progressive loss of vision which seemed to have been going on for a week or two before I saw her without much notice of it being taken. After a dose of calomel on July 12 she had several involuntary movements during sleep. Of late she had been growing more drowsy and desired to sleep most of the time. She was inclined to be a little silly, a condition which her father noticed some weeks before; she talked baby talk. She seemed to be indifferent to her condition, certainly not at all, apparently, concerned about it. There was paralysis of all the muscles of the left eye, particularly of the external rectus and some involvement of the muscles of the right eye. The reflexes were certainly within the normal and were equal everywhere, but were not lively. No changes in the special senses are to be noted except in the olfactory. None of the other cranial nerves are involved.

An attempt was made to examine the eyeground, but without success, both on account of the difficulty of keeping the eye quiet and of a poor lens. The pupils reacted slowly to accommodation and very slightly to light. The left eyeball seemed more prominent than the right. Her headache was not of any moment, differing in no way from those she had usually had. An attack of nausea and vomiting occurred several days previously which may have borne some relation to the excitement from coming home from Santa Barbara.

July 15: A consultation with Drs. Newmark and Moffitt developed nothing new except the existence of a slight left hemianopsia. The patient was so blind in both eyes that she recognized only vaguely objects held in front of her, but certainly these were seen more clearly when held on the right side. There was also a left optic neuritis. The treatment given her at this time was 10 gr. potassium iodid t. i. d. and a half dram of mercurial ointment by inunction daily.

July 22: She had continued the mercury and the iodid and was now taking 15 gr. of the latter t. i. d. She was almost completely blind, apparently so in both eyes. She seemed to see a candle better when held in front of the eyes and the light and outline grew dimmer as it was moved toward the right or left from the center of the face. This condition was the same when the eyes were examined separately.

For a few minutes on July 20 she could see the outline of a figure in the right field when she could not see it at all in the left field. This temporary improvement in vision was observed by the nurse, who stated that the patient was looking at her with both eyes and was able to describe the dress she had on at a distance of four feet when she stood on the patient's right side, but that she could not see her when she stood on the left side.

The examination July 22 did not appear to bear out the possibility of this having been an evidence of a left homonymous hemianopsia. She certainly saw better for a short period, but nothing more definite could be obtained. On directing her to move the eyes to test the muscles, the right internal rectus seemed quite normal; the left internal rectus was impaired, although the left eye followed a finger moved to the right better than the right eye. The left internal rectus was the only muscle of the *left eye which responded at all.*

Above the left eye, beginning about 1 cm. from the median line and two-thirds of the way up from the eyebrow to the hair line, extending over to the left side for 2 or 3 cm. was an area which was very painful. This was the only painful spot in the entire front of the head.

The urine on July 15 was found to contain a number of casts, hyaline, fine granular and epithelial.

July 30: The patient menstruated as usual and normally during the preceding week. The right disc was becoming paler, and there was progressive neuritis of the left. The area of tenderness over the left eyebrow, noted about a week previously, was becoming progressively worse, and she had a little more headache than usual.

In view of the diagnosis of cerebral tumor it was decided to take the patient to Philadelphia and to place her under the care of Dr. Keen.

Nasal Examination.—As soon as she arrived Dr. George B. Wood made the following report on August 4 of the condition of her nose:

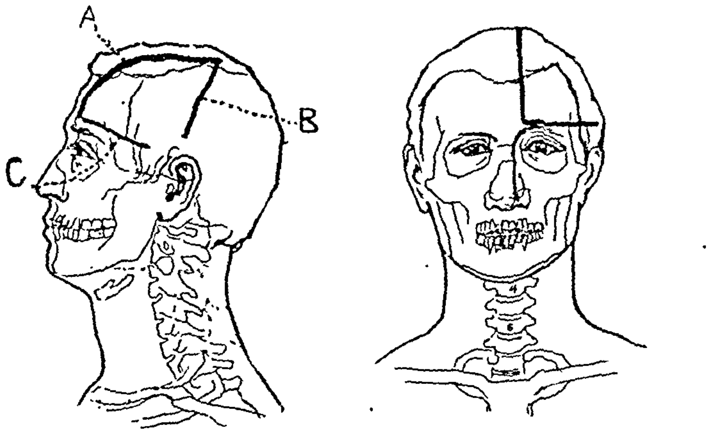
"The left nasal fossa is markedly obstructed by swelling and congestion of the middle turbinal, which presses firmly against the septum. There is a thin line of muco-pus coming from between the septum and turbinal. This is the position in which pus is found when there is suppuration in the posterior ethmoidal cells or sphenoidal sinus. The nasal fossa below this middle turbinal is fairly free. On the right a very similar condition is present, but is not so well marked and is considerably obstructed by deviation of the septum. A posterior rhinoscopic view was impossible because of irritability of the throat. From her history of nasal trouble prior to any possible cerebral symptoms, and from a careful consideration of the above facts I do not feel warranted in saying that there is no indication of sphenoidal disease. On the other hand, I could not prove that there was any pus in the accessory sinuses of the nose. Tests of hearing showed a slight loss in the right ear, most probably due to some disturbance in the sound-perceiving apparatus. The anosmia, which is complete, may be due to the internasal hypertrophy, but looks as though it were central."

Examination of Eyes.—Dr. William M. Sweet examined the eyes also on August 4 with the following report: "Right Eye.—No light perception to strong electric illumination; pupil 5 mm., reacts sluggishly to direct stimulation, imperceptible to indirect test; no rotation of the ball outward beyond the median line, other movements apparently unimpaired, although on forcible rotation inward the eye turns downward; media clear, margin of optic disc slightly blurred, and retinal veins full but not tortuous; evidence of a beginning low grade papillitis. Left Eye.—No light perception; decided exophthalmos; pupil 6 mm., slight reaction *to direct light, but almost* imperceptible; indirect reaction lost; rotation of globe nearly abolished in all directions; media clear, marked swelling of the optic nerve, amounting to 5 D., the swelling and infiltration extending for some distance into the retina; the retinal arteries are small, the veins distended and tortuous, and covered in part by the intense infiltration; on the swollen nerve head and its immediate neighborhood are numerous flamelike hemorrhages. The sensibility of the cornea and conjunctiva of the right side is normal, but is apparently increased on the left side."

SURGICAL REPORT BY DR. W. W. KEEN.

I first saw Miss M. with Dr. Brown on Aug. 1, 1903. Later we had a consultation at the Orthopedic Hospital with Drs. Sinkler, John K. Mitchell, F. X. Dercum and William J. Taylor. Our unanimous opinion was that there was a tumor in the anterior part of the left frontal lobe and that operation, though it held out but little hope, afforded the only possible means of escape. When I first saw her, the left eyeball was markedly protuberant, so that the lids could just be closed over the cornea. Pressure over a considerable area in the left temporal region was painful. Tapping over the head was painful all the way back from the eyebrow to the biauricular line.

Operation.—August 5. I commenced my incision in the left temporal region, a little above the outer end of the eyebrow, continued it internally parallel with the eyebrow and about 1 cm. above it in the hope of avoiding the frontal sinus, and yet getting as near as possible to the orbital plate. This line was 9 cm. long. Then, at a distance of 1 cm. to the left of the middle line, I made my incision posteriorly for 14 cm., then obliquely downward and forward to the temporal region, a distance of 14 cm., making 37 cm. in all. As soon as I made the posterior incision, in separating it sufficiently for chiseling, I found that at three points there were small holes in the skull caused by the tumor underneath, which was just visible through the openings. In chiseling through the bone from the line to the temple across the forehead, I found a peculiar discharge, which looked almost like pus, and yet was quite gelatinous, which I found later to come from the frontal sinus. The tumor by pressure had broken through the posterior wall of the frontal sinus throughout its entire length and had also broken through on the inner side into the ethmoidal cells, so that it communicated in both of these ways with the nasal cavity. This led me at once to suspect an infection. I disinfected the parts as soon as the flap was turned down as thoroughly as possible with hot saline solution, scraping away a considerable amount of gelatinous and apparently purulent discharge. I opened the dura and found it very adherent to an enormous underlying tumor which passed backward as far as my opening in the bone. A large part of it was almost diffluent. A large portion of the exposed brain surface consisted of the surface of the tumor, the convolutions having been entirely destroyed. With the finger I scooped out a large portion of the tumor. It was evident that it was such an infiltrating mass that it would be impossible to remove all of it successfully. Accordingly, when I had removed a sufficient amount to relieve the pressure and also to allow closure of the dura, I desisted.



Figs. 1 and 2, showing lines of incision. A and B were 14 cm. long; C, 9 cm.

In scooping out the mass posteriorly I evidently broke into the lateral ventricle, for a considerable amount of cerebrospinal fluid escaped, and also I recognized by the finger what I suppose was the arched upper surface of the corpus striatum. During the manipulations to remove the tumor I found that it had destroyed a large portion of the roof of the orbit, and had invaded the orbital cavity, thus producing the exophthalmos. With the rongeur forceps I made a drainage opening at the edge of the bone flap and then packed the large cavity left by the removal of the tumor and a great deal of débris with iodoform gauze. The hemorrhage was free, but not alarming, and was easily checked by the gauze packing. The end of the gauze packing was brought outside for drainage.

Postoperative Notes.—During the next ten days the pulse ranged from 100 to 120 and the temperature from 100 to 101.5 F. Part of the time the urine was voided involuntarily. There was great edema of the entire face for four or five days. She regained her intelligence to a considerable extent on the third day, but her disposition seemed to have changed and she was quite irritable. She would stroke some one of her family or her nurses gently once or twice, but gradually the stroking would become violent and she would suddenly grow very irritable, yet on being spoken to would instantly become pleasant and friendly. She suffered no pain except during the dressings. She did not seem to realize her condition, nor did she ask about it. There was occasionally slight twitching in the fingers of the right hand, and the nurse reported on several occasions twitchings of the entire body.

Her menstruation, which had ceased July 28, recurred on August 7, two days after the operation, and ceased after four days. The packing was removed on August 9, the fourth day. A very large amount of necrotic tissue from the tumor and the brain, together with considerable fluid discharged through the drainage wound. As it was evident that she could not recover, her father decided to take her home on August 15, when her condition was such as seemingly would allow of it very readily. Suddenly at noon on that day her temperature rose to 104 and her pulse to 150 or 160, evidently the result of infection of the wound. This was, of course, to be expected, since the wound cavity communicated with the frontal sinus and the nasal cavity, and, in fact, was already infected at the time of the operation. The discharge was examined bacteriologically and found to consist of pus with a few intercellular cocci. The Gram stain was not tried.

LATER HISTORY BY DR. BROWN.

In spite of her condition, as all the complicated arrangements had been made for her to be taken to her home in San Francisco, her father and I started with her on the evening of August 15. She stood the trip home very comfortably. The infection spread, and in consequence of this I removed several of the stitches in order to secure freer drainage. With this the temperature fell to 100 or below, and the pulse from 130 to 110. She reached home on August 19. For several days after her return she passed all her urine and feces involuntarily. She never suffered any pain. The exophthalmos returned to a greater degree than ever and the tumor protruded through the drainage opening. The infection never spread beyond the area of the operation.

She gradually failed and after being unconscious for several days, died on September 23, a little over a month after her return home and six weeks after operation.

Dr. Charles W. Burr, the pathologist of the Orthopedic Hospital, examined the tumor and pronounced it a sarcoma.

AUTOPSY REPORT BY. DR. BROWN.

Sept. 24, 1903. Coverslips and cultures were made from the wound, from the base of the brain anteriorly, from the hypophysis and from the nasal cavity exposed in lifting up the tumor. Immediately following the death of the patient the granulated flap receded until it remained only slightly above the height of the corresponding part of the other side; the enlargement of the left side being reduced fully three-fourths. The flap was not adherent by any but fibrous adhesions anywhere along its course, except where it had been fractured. There was no erosion of the bone flap. On exposing the brain, the convolutions all over the anterior part, and less markedly over the posterior part, were obliterated. The superficial vessels were deeply engorged. The part involved by the tumor was pale, white and semigelatinous. The tumor had involved also the right frontal lobe to a considerable extent, particularly on its median aspect. The posterior wall of the frontal sinus was entirely gone, as was the whole of the cribriform plate and the median half of the roof of the orbit. When the brain was lifted up a cavity was exposed as large as a good sized walnut, connecting directly with the posterior nasal region. It is possible that the dura may have been torn away in lifting up the brain in an attempt to hold the rapidly disintegrating part together by loosening up the whole of the dura, but, in any event, there must have been some communication between the tumor mass and the nose, although during life there had been no discharge whatever through the nose. The infected area was confined to the anterior and upper part of the surface of the brain, and there was a possible basilar meningitis extending back as far as the hypophysis, but there was no pus accumulation save superficially, at the point of the enclosed parts of the surgical wound.

Microscopic diagnosis: Angiosarcoma.

Cultures showed only staphylococci, although diplococci also were found in the smears.

The special features of the case medically were the insidious onset of the symptoms and the comparatively painless development of the tumor to its great size, particularly as it involved the bone so extensively. At the time of the operation the roof of the orbit was eroded so that an opening in it the size of a dime had resulted, and the tumor had also perforated the two plates of the skull as far back as the limits of the frontal bone. The pressure symptoms on the nerves of the eye and its muscles and on the eye itself were conspicuous. but a single dose of 5 grains of phenacetin controlled the only pain of any note from first to last. The vomiting, although characteristic on rare occasions under excitement or in change of position, was a very late symptom and quite insignificant.

The menstrual function was not interfered with, as is occasionally the case with tumors near or at the hypophysis.

Editor's Note:—The discussion on the papers of Drs. Kendig and Wolfstein and Brown and Keen will appear next week

Special Article.

IMMUNITY.

CHAPTER VII.

ACQUIRED IMMUNITY.

When immunity is acquired as the result of an infection it is said to have been acquired naturally (a very different thing from natural immunity). Immunity which is acquired artificially may be active, as in vaccination; or passive. as when diphtheria antitoxin is injected prophylactically.

Acquired Active Immunity.

As an illustration of naturally acquired active immunity, a person who has recovered from scarlet fever, smallpox, plague or typhoid fever, becomes possessed of prolonged protection against subsequent attacks. This is also true of many animal diseases. On the other hand, the protection afforded by an attack of certain other diseases is of shorter duration: cholera, diphtheria, pneumonia, etc., at least in many instances. So far as is known, the protection which is acquired is very specific in character, i. e., a person who has had measles may still have scarlet fever, or an attack of cholera does not protect against a later attack of typhoid fever.

In contrast to the diseases mentioned. there appears to be a number in which an attack confers no evident protection, as gonorrhea, influenza, recurrent fever and malaria. It is also possible that some diseases create a predisposition for a recurrence (erysipelas).

A very important factor in the progress of artificial immunity was the knowledge that a light attack of an infection (scarlet fever, cholera, typhoid, smallpox) was efficient in conferring immunity. Such light attacks are frequently noted sporadically and in epidemics, while occasionally an epidemic is mild in character throughout. As examples may be mentioned the benign smallpox which recently prevailed in the middle Western states and the mild character of the plague encountered in some cities.

Vaccination.

In view of this fact it would be desirable if one could produce at will infections which would certainly run a benign course, for the purpose of establishing immunity to possible severe infections of the disease. And it might be possible to so modify the virus injected that protection could be established without setting in motion the actual disease even in a mild form.

Attenuation.

In order to accomplish this, some method must be found which will weaken or attenuate the virus or microbe to the proper degree. An attenuation of this nature had long been practiced with smallpox virus. Before cowpox was resorted to as a source of vaccine, it had been the custom to inoculate the genuine smallpox virus from a patient into the skin of a healthy person. Contrary to the natural expectation, this method did not in very many cases reproduce the disease in all its severity, but, rather, the modified diseases which we call varioloid. This phenomenon may depend on the fact the smallpox virus finds the skin and subcutaneous tissue an unfavorable medium for the development of virulence; a condition which would be equivalent to an attenuation of the microbe. The pathogenicity of the cholera vibrio in animal experiments is affected similarly in subcutaneous injections. It is now generally considered that cowpox is smallpox which has suffered a decrease in virulence because of its passage through the cow. Consequently, when this weakened virus is planted in the skin of man, where it may undergo further attenuation and produce the mildest possible form of modified smallpox, we have an ideal vaccine. Similarly, the anthrax bacillus may be attenuated in its virulence for the sheep by passing it through the dove. This method of decreasing, or in some cases of increasing, the virulence of a micro-organism is known as passage.

No single method of attenuation is suitable for all micro-organisms. Pasteur found that the bacillus of chicken-cholera became weakened gradually in old cultures exposed to the light and air, so that it could then be used safely as a vaccine; also that the anthrax bacillus when grown at 42 C. was attenuated and did not form spores, and thus became a suitable vaccine for sheep and cattle. Of no less interest to us was Pasteur's method of attenuating the virus of hydrophobia by desiccating the spinal cords of infected animals (rabbits); the altered cords are then available for the immunization of individuals who have been bitten by a rabid animal.

Work of the past decade has shown that successful vaccinations may be made against cholera, typhoid and plague by using for the inoculations cultures which have been made avirulent through artificial cultivation, or those which have been killed outright by heat.

Acquired immunity to toxins has already been mentioned briefly (Chapter IV).

Nature of Acquired Immunity.

In regard to the nature of acquired immunity to bacteria and to toxins, one may inquire if it is due to the presence of the antibacterial and antitoxic substances which were mentioned in connection with natural immunity. Although normal serum is strongly bactericidal for the typhoid bacillus, the serum of one who has recovered from typhoid fever possesses this power to a much greater degree. As this is true in many other bacterial infections, the new resistance is held to depend on the increase of bactericidal substances in the serum. Similarly in the immunity acquired to diphtheria and to tetanus, the most conspicuous change is a great increase in the corresponding antitoxins. The result is the same, regardless of whether the immunity be produced by a natural attack of the disease, or by artificial immunization with the specific microbe or toxin. Accordingly it seems probable that acquired immunity depends on the presence in the serum of an increased amount of properties which, to a certain degree, may be present normally.

Acquired Passive Immunity.

Inasmuch as it has proved possible by the prolonged immunization of animals with bacteria or toxins to induce a high concentration of antibacterial or antitoxic substances in their serum, it was the natural expectation that if such serums were injected into other animals the latter would thereby be endowed with an increased resistance to the infectious agent against which the serum had special activities (passive immunization). This has been found to be the case with many antibacterial (typhoid, cholera, plague, dysentery, etc.) and some antitoxic serums (diphtheria, tetanus). Unfortunately the protection afforded by the injection of an immune serum is of short duration (from two to several weeks); it is as if a foreign substance had been injected, the fate of which is to be eliminated rapidly. On the other hand, in active immunity the protective substances are formed continuously by the body cells, and for this reason they often exist in some concentration over a long period.

It was, of course, to be hoped that such serums would have a curative value equal to that of their prophylactic power. However, when we consider the individual diseases, it will be seen that the curative power of most immune serums is very low, and that to be successful in any case they must be used at a very early period in the disease, usually at a time preceding the patient's first call to the physician. Happily diphtheria antitoxin is a luminous exception to the rule.

Mention may be made here of the well-known but curious phenomenon that the resistance of individuals is subject to modifications as regards different periods of life. Typhoid fever attacks the adolescent or middle-aged rather than the very young or very old. Active tuberculosis grows less common in the later decades of life. Then we have what are distinctively the diseases of childhood. Some of these instances may be referable to differences in the character of the cell receptors at different ages, while perhaps others are due to a slow immunizing process occasioned by the prolonged presence of non-pathogenic amounts of the proper micro-organisms.

As previously stated, one finds bactericidal and antitoxic substances and various cytotoxins in normal serums. Also we have seen above that immunization with bacteria and toxins gives rise to the new formation of corresponding antibodies.[1]

Immune Cytotoxins.

Investigations have also shown that immunization with other kinds of cells, as erythrocytes, leucocytes, kidney and other tissue cells, cause the formation of immune cytotoxins, which cause recognizable changes in the cells used for the immunization.

Agglutinins.

By systematically injecting an animal with a bacterium or with any tissue cell, agglutinating substances (the agglutinins) are formed and may be demonstrated in the serum. Like other antibodies, they are highly specific for the cell used in the immunization. It is by no means certain that the ability of an individual's serum to agglutinate a microbe bears necessary relationship to his immunity to the microbe, although this relationship certainly exists in some cases.

It has been found that some other toxins, aside from those of bacterial origin, will yield by injections specific antitoxins. Such toxins are snake venom, yielding antivenin; ricin, a hemagglutinating toxin from the castor oil bean, yielding antiricin, etc.

The Biologic Test for Species.

Recently what is termed the biologic test for species has assumed prominence. This test may be illustrated: A goat is injected repeatedly with the serum of man. After a number of injections a very minute amount of this goat's serum will cause a precipitate when mixed with human serum, but not when mixed with the serum of any other animal (except, perhaps, that of anthropoid apes). It is so delicate a test that when a small amount of old dried human blood is dissolved in salt solution and treated with the goat serum the precipitate will still occur, and, in view of this fact, the test has become important from the medicolegal standpoint. The wide distribution of this phenomenon among all kinds of animals gives it great biologic significance.

Precipitates.

Kraus found that by immunization with certain bacterial filtrates substances are formed in the serum which cause precipitates in the filtrate. It is further interesting that other albumin-containing substances, as egg albumin or milk, will yield on immunization specific antibodies. An antibody for goat's milk (obtained, for example, by injecting the horse) will cause a precipitate in goat's milk, but not in cow's milk nor in human milk.

Antiferments.

It has also been possible to obtain specific antibodies for ferments: for the peptonizing ferments of bacteria, for emulsin, lab, fibrin ferments, etc. There are, however, very many substances for which serum antibodies can not be obtained; this is true for all substances of known chemical composition, as acids, bases, salts, and for some others the chemistry of which is unknown, as the alkaloids (strychnin, morphin, aconite, etc.)

The Leucocytes in Acquired Immunity.

It was stated in the section on natural immunity that the leucocytes, acting as phagocytes and as resorptive cells, seem to be responsible, at least in part, for natural resistance to an infection.

Metchnikoff and his followers have provided us with many observations which are interpreted as showing that the importance of these cells is continued into acquired immunity. These investigators state that in acquired immunity the phagocytes have a much greater capacity for ingesting and killing bacteria and for absorbing and destroying toxins than when the animal is in a state of greater susceptibility. It is also concluded that the serum in acquired active immunity owes its new or more powerful antibacterial, antitoxic and other properties to the leucocytes, which under the influence of the infection have overproduced and excreted these substances into the plasma.

But it is also held that, in passive antibacterial immunity, the immune serum which is injected is potent, because it either stimulates the phagocytes to a greater activity or increases positive chemiotaxis or changes a negative into a positive chemiotaxis. These changes may be due to alterations which the immune serum causes in the bacterial cells.

It is well known that in recovery from many infections (*pneumococcus, streptococcus, staphylococcus, etc.*) a great hyperleucocytosis appears, and it has been noted in fatal examples of these infections that this marked hyperleucocytosis either fails to develop or, having developed temporarily, eventually recedes. Hence, we have some presumptive clinical evidence in favor of the importance of leucocytes in recovery from certain infections, recovery implying the acquiring of increased resistance.

Emmerich and Loew found that many bacteria produce in culture media, as well as in the animal body, substances which apparently act as ferments and which are able to kill not only the bacterium which secretes the ferment but many others. For example, pyocyanase, the bacteriolytic enzyme

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[1] In serum nomenclature, an antibody is some substance in the serum which antagonizes, neutralizes, precipitates or dissolves some other substance with which it comes in contact. Thus diphtheria antitoxin is the antibody for diphtheria toxin; the bactericidal substance contains an antibody for the bacterium which is destroyed; and a hemolysis, an antibody for the red corpuscle which is dissolved. Similarly in immunizing with a bacterium or with a toxin, tissue cell or an albumin, the corresponding antibodies are new formed. Hence we have natural and immune antibodies.

Bacteriolytic Enzymes.

of the *Bacillus pyocyaneus*, dissolves pyocyaneus, anthrax, diphtheria, typhoid, cholera, streptococcus and staphylococcus. These enzymes usually are not toxic for the animals and it is supposed that during the course of an infection, when they reach sufficient concentration, they destroy the bacteria which produced them, thus bringing about recovery. It is claimed also that they, either during infection or as a result of repeated injection of the ferment, enter into a somewhat permanent combination with the albumin of the body, forming the so-called "immune-proteidin," on which acquired immunity depends.

Furthermore, with "pyocyanase-immuneproteidin" it is possible to so immunize a rabbit that a subsequent (12 days) otherwise fatal dose of the anthrax bacillus is harmless.

Although the effects of these "enzymes" on anthrax and on some other organisms have been confirmed by a number of investigators, it is not generally thought that they exercise an important function in acquired immunity or in the recovery from infections. There is the special objection to this theory that it puts immunity on a non-specific basis; i. e., pyocyanase will protect against anthrax, diphtheria, etc., while, in reality, all our clinical and experimental data point to the high specificity of an acquired immunity. It seems more reasonable to assume that these "enzymes" are able, in some accidental manner, as bouillon and many other substances are. to temporarily increase natural resistance.

CHAPTER VIII.

TOXINS AND ANTITOXINS.

The word toxin has acquired a special significance in pathology. According to Ehrlich toxins are distinguished by the following properties:

Ehrlich's Conception of Toxins.

1. They are extremely labile substances which occur as secretion products of vegetable or of animal organisms.
2. The impossibility of obtaining toxins in a perfectly pure form and their great lability have made impossible a knowledge of their exact chemical nature.
3. An analysis of a toxin may be reached at present only through the medium of animal experiments.
4. Immunization with toxins yields antitoxins. It has not been possible to obtain antitoxins for inorganic poisons, glucosids and alkaloids (morphin, strychnin, etc.).
5. In contrast to well-defined chemical poisons, the action of toxins is characterized by a latent or incubation period. That is, following the injection of a toxin, a certain period of time elapses before toxic symptoms appear, and this period is greater than the time logically required for the absorption of the toxin through the circulation.[1] This period can not be eliminated by injecting larger amounts of the toxin, although it can be greatly shortened in this manner. As exceptions, there are a few toxins which apparently act without incubation period (snake venom); these are still to be classed with the toxins, however, because of their power to yield antitoxins by immunization.
6. "The facts make it necessary to assume, as a condition for the poisonous action of toxins, a specific chemical union of the toxin with the protoplasm of the cells in certain organs." . . . "The affinity of other poisons, as the alkaloids, for tissues, depends not on chemical union, but on some such process as solid solution or loose salt formation."

Preparation of Soluble Toxins.

The preparation of soluble toxins is relatively simple. It is necessary only to inoculate a suitable fluid culture medium with a culture of the micro-organism. to allow growth to take place for some days at body temperature, then to pass the fluid through a porcelain or some equivalent filter. The soluble toxins usually may be precipitated from the filtrate by some precipitant, as ammonium sulphate, and preserved in a dried state for a long period. Such a precipitate does not represent the toxin in a pure form, but various proteid substances of the culture medium as well.

The diphtheria and tetanus bacilli, *Bacillus pyocyaneus*, and *Bacillus botulismus*, are the principal micro-organisms which produce soluble toxins.

Specificity and Multiplicity of Toxins.

When the toxins of these organisms are injected into a suitable animal, phenomena similar to those produced by an infection with the organisms themselves are produced. They are in a particular sense specific toxins. Some micro-organisms, however, produce more than one toxin. The tetanus bacillus, for example, secretes, in addition to the toxin causing the nervous symptoms of tetanus, another (tetanolysin, or tetanus hemolysin) which has the power to destroy red blood cells. Ehrlich holds that the diphtheria bacillus produces not only the toxin which causes the acute intoxication of diphtheria, but another of long incubation period which may cause paralysis. Cobra poison has at least two toxins, one which attacks the nervous tissues—a neurotoxin—and another which attacks the erythrocytes; the two may be separated by appropriate measures. As previously stated, the serum of the eel also has a strong neurotoxin and a hemotoxin.

Non-specific Toxic Substances.

Some micro-organisms produce one or more soluble toxic substances, which it is often difficult or impossible to consider as the actual disease-producing elements of these organisms. Concerning a disease which is so well characterized clinically as tetanus, it is not difficult to determine by inoculation experiment whether one has in hand the specific toxin. The proof is naturally much more difficult in relation to streptococci and staphylococci, for example, where the group of symptoms and the pathologic conditions are not entirely unique for the infection. We consequently lack grounds for considering the hemolysin or the leucocidin (toxin for leucocytes) of the staphylococcus, or the hemolysin of the streptococcus, as the paramount disease-producing toxins of these organisms.

The Test of Immunization.

Under such conditions, the essential test as to the importance of the toxin must be the immunization experiment; i. e., does immunization with the toxin give rise to the formation of an antitoxin which is efficient in treating an infection with the micro-organism itself? If, for example, a culture of the typhoid bacillus is properly manipulated, a toxic substance free from the bacillus may be obtained in solution. Immunization with this "toxin" yields a serum which is strongly bactericidal for the typhoid organism, but it has no power of reducing the phenomena of typhoid intoxication; hence it is not an antitoxic serum. The dilemma is the following: If the toxin is the true typhoid toxin, it is of such a nature that it does not permit of antitoxin formation; or, on the other hand, it is not a true toxin. A decision between these two points is not possible in the present state of our knowledge.

(To be continued.)

Desquamation in Typhoid.—J. Vergely reports in the *Archives Gén. de Méd.*, cxciv, No. 34, 1904, a case of typhoid observed at Bordeaux, followed by general desquamation of the skin without any previous inflammation or other symptom suggesting its occurrence. He recognizes the occurrence in typhoid of local desquamations following the rose spots or sudamina. and in some rare instances, like the one reported, of especially severe type of the disease. This lamellar or squamose type of desquamation may occur in any part of the body without previous erythema. He credits this to either a special virulence of the toxin of the disease or to some peculiar functioning of the skin in its elimination. He finds only 6 similar cases on record: 4 reported by Osler, in one of which there was previous erythema, and 2 by Riesman.

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[1] Recent work indicates that the long incubation period of tetanus may depend, at least in part, upon the length of time required for the toxin to reach the ganglion cells through the axis cylinders of the motor nerves.

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THE PARASITE OF CARCINOMA.

The discovery of the parasite of carcinoma, like the appearance of the sea serpent, has become an almost perennial occurrence during the past few years. The peculiar cell inclusions, which are not infrequently found in malignant neoplasms of epithelial origin, have passed through almost as many aliases as an habitual criminal. They have been classed as protozoa, as blastomycetes, and as rhizopods, and now we are asked to believe that they are plasmodiophoræ. There can be little question, judging from the photographs and plates which illustrate the various articles which describe them, that the same bodies have been described by different observers under the various names mentioned above. The latest contribution to the literature of cancer parasites comes from Robertson and Wade,[1] who, following in the footsteps of Behla and Gaylord, compare carcinoma with the peculiar disease of plant roots called clumps, and claim to have isolated from carcinomata an organism of the plasmodiophora group similar to that which produces this plant disease. The descriptions of Robertson and Wade can not be said to be convincing. They give one the impression that the observers are straining, doubtless unconsciously, to make the description of the so-called parasite tally with that of the known organism which it is supposed to resemble. Then there is the same necessity for special methods of staining, the variation in the size of the cancer bodies, and the general vagueness of description. The description of the culture experiments shows certain noteworthy peculiarities. Their absolute failure to grow in the presence of the small amount of condensation water usually present in agar tubes, their absence from smear preparations, and their presence only in hardened sections of the agar all suggest the possibility that they are merely artefacts, a possibility which the authors do not sufficiently exclude by controls. The reading of such a paper suggests that we are on the wrong track in continuing to search for cancer parasites, especially when we consider the mass of negative observations which have been accumulated, notably by the Boston observers. Certainly there is little analogy between the lesions produced by known microorganisms in chronic disease and those which characterize malignant growths. Gaylord's inoculation experiments with the organism which produces root nodules, plasmodiophora brassicæ, resulted in the production of nodules which were obviously granulomata. Similar results have followed from the inoculation of other organisms which, from time to time, have been described as cancer parasites. When secondary foci have been produced they also have been granulomatous. Such being the case, a comparison with secondary neoplasms seems irrational in the extreme. One can hardly compare a secondary nodule composed of leucocytes and of proliferated tissue cells with a metastasis which imitates the structure of the organ from which a new growth originated.

Attempts to prove new growths infectious by studying their distribution in given districts have also been lacking in conviction, though it can not be denied that in a few instances the distribution of cancer cases has suggested an infectious origin. The fallacy of the cancer house theory, however, has been proved by the careful work of Lyon, who has shown that house collections of cases are far better explained by the influence of heredity and in-and-in breeding than by infection. A study of the last census also showed a distinct relationship between the average age of the inhabitants of a district and the prevalence of cancer; those districts which contained the greatest number of old people having the greatest cancer mortality.

These facts, and others could be adduced, speak strongly against a parasitic origin of new growths. For the present it would seem that they must remain as mysterious as ever, and yet the solution of their origin is probably not beyond the reach of human effort; nor does our lack of knowledge as to their cause preclude the possibility of finding a cure. The great increase in our knowledge of the biochemistry of cells suggests that we may find the antidote, but the present indications are that we must change our line of research.

THE SURGICAL TREATMENT OF ERB'S PALSY.

Whether one is a "peripheralist" with Bethe, Apathy, Kennedy, Ballance and Stewart, or a "centralist" with Kölliker, Howell and Huber as regards the manner of peripheral nerve repair after suture, is of little practical moment to the clinical worker. The process of regeneration in the peripheral portion of a divided nerve at first may be autogenous, but permanent repair is possible only by union with the proximal segment, whose benign influence in restoring function is by no means small. Secondary suture and anastomosis of divided peripheral nerves are not only invaluable procedures in the treatment of isolated lesions of peripheral nerves of the extremities, is current medical literature attests, but the work, happily, has been extended to the treatment of many different types of peripheral and spinal palsies. This is notably true in operative repair of chronic facial palsy after mastoid disease, and in old cases of Bell's palsy; in poliomyelitis, and in the obstetrical birth palsy of Erb's type. There have been but few operations on the two latter types of palsies. The brilliant but rather uncertain results in cases of nerve grafting in poliomyelitis deserve the earnest attention of neurologists, pediatrists and orthopedists alike.

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[1] Lancet, Jan. 28, 1905; abstracted in The Journal, Feb. 25, 1905, p. 662.

Secondary operation on the brachial plexus, although cases in which it has been performed are relatively few in number, has decidedly passed beyond the experimental stage. The cases of Erb's palsy operated on show that excision of the damaged nerves, and final suture of the ends, is followed, after several months, by more or less complete recovery. As a result of a recent collaborative study[1] embracing clinical, surgical and pathologic research in seven cases, some interesting facts have been established. It has been proved conclusively that the main factor in the production of obstetrical palsy is one of undue tension on the nerve trunks. Overstretching ruptures the perineurial sheath and the nerve fibers of the fifth and sixth cervical nerve roots at or near their union in the brachial plexus. The nature of the injury, which has been determined by microscopic analysis of the damaged nerve fragments, proves that nerve regeneration by natural means is impossible, because the ruptured perineurial sheath kinks down on and between the torn nerve strands. Furthermore, the barrier to regeneration is augmented by the organization of the blood clot from the torn blood vessels lining the perineurial sheath and subsequent secondary connective tissue overgrowth. These barriers prevent recovery in all severe cases. The obstetrical lesson taught here is not to overstretch the child's neck in the process of delivery, and its general recognition would be a marked step forward in preventive medicine.

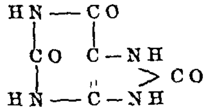
The avoidance of the accident rests largely in dividing the points of application of the pulling force where the latter procedure is absolutely necessary. The fact that Erb's palsy occurs very frequently in vertex as well as in breech cases, shows how unwise obstetrical practice has often been. From the nature of the lesion, the persistence of the partial palsy in these cases is easy to understand. Only the slightest grades of brachial birth palsy could be expected to recover spontaneously; in the others, after a variable period of from three to nine months of medical treatment by carefully graduated massage, electricity and active movements, operation should be considered. As there are no immediate diagnostic tests by which it may be absolutely decided whether a certain nerve has been lacerated or merely contused, the determination of the extent of the lesion is often difficult. Dependence must be placed largely, therefore, on electrical and functional tests, as in nerve injuries elsewhere in the body.

The results of secondary operation on the brachial plexus have been variable; thus Kennedy reports more or less satisfactory results in four of his six cases, while the American authors had a mortality in their first two cases from intercurrent causes. In the latter five, three were very greatly improved and two only to a slight extent. Too short a time has elapsed as yet for a final report. Under improved technic, which is possible only after a larger series of such operations in fairly selected cases, it may be expected that secondary operation on the brachial plexus will take equal rank with other well-established methods in neurologic surgery.

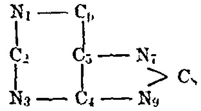
TRUTH AND POETRY CONCERNING URIC ACID.

IX.

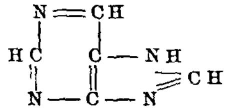
Before going on to a discussion of the conditions of uric-acid formation, uric-acid decomposition and uric-acid elimination in pathologic states it is necessary, in order that the discussion may be intelligible, to review briefly the facts which have been established regarding the chemical nature and physical properties of uric acid and the urates. The empirical formula for uric acid has long been known as $C_5H_4N_4O_3$. As a rational formula, Medicus suggested the structure



and this has been proved by Emil Fischer[1] to be correct. The latter investigator was the one to show that uric acid is only one of a large series of allied substances known as the purin bodies, since they are all derivatives of a substance, which Fischer discovered and made synthetically, known as purin $C_5H_4N_4$. All these purin bodies contain the group C_5N_4, the atoms in this group (the so-called "purin nucleus") being arranged thus:

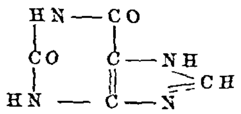


"Purin-nucleus."

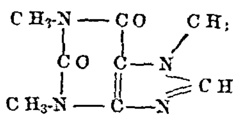


Purin.

Each atom of the purin nucleus is given a number as just indicated, and the various substances containing it are best designated according to this scheme. Thus, if the structural formula for uric acid given above be examined, it will be seen that it consists of the purin nucleus with three oxygen atoms attached to it, one to the second atom, one to the sixth atom and one to the eighth atom of the nucleus; the chemical name for uric acid is, therefore, 2.6.8-trioxypurin. Similarly, xanthin, which has the structural formula shown



Xanthin



Caffein

is chemically called 2.6-dioxypurin. Caffein contained in coffee has the same formula as xanthin except that the hydrogen atoms attached to the first, third and seventh atoms of the purin nucleus in purin are replaced by methyl groups; caffein is accordingly designated as 1.3.7-trimethylxanthin. If one hydrogen atom of purin be replaced by the amido group, NH_2, we get adenin (6-aminopurin); or replace one H atom by NH_2 and add an oxygen atom and guanin (2-amino-6-oxypurin) results. Xanthin, hypoxanthin, adenin and guanin are all constituents of the cell nucleus and forerunners of uric acid. Caffein of tea and coffee, theobromin of cocoa and theophyllin are all purin bodies, capable of transformation into uric acid.

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[1] Proc. N. Y. Neurol. Soc., April and November, 1904.

[1] Fischer, E.: Synthesen in der Puringruppe, Ber. d. deutsch. Chem., Gesellsch., xxxii, 1899, 435.

Pure uric acid is a light white powder, seen microscopically to consist of rhombic tablets. It dissolves in water with extreme difficulty. At 18° C. the solubility in pure water is 1 to 39,480, that is to say, a liter of a saturated solution contains only 0.0253 gram of uric acid.

The physical chemistry of uric-acid solutions has been carefully studied by His and Paul.[2] The subject is complex and can not be gone into fully here; these recent studies, however, have thrown great light on the conditions of solubility of uric acid and the causes of its precipitation, and have knocked the bottom out of a whole series of ill-founded theories of gout and the so-called uric-acid diathesis. It will be sufficient for the purposes of this review to epitomize the chief facts which have been established.

On dissolving in water, a part of the uric acid undergoes ionic dissociation into positive hydrogen ions and negative ions, just as HCl dissociates in aqueous solution into hydrogen ions (hydrion) and chlorin ions (chloridion). But, since uric acid has two hydrogen atoms that can be replaced by metals, that is to say, since it acts as a dibasic acid, it undergoes dissociation in two stages. The primary dissociation is into the hydrogen ions or hydrion ($H^{\cdot}$) and the univalent anion ($C_5H_3N_4O_3'$); in the secondary dissociation, a part of the univalent anion divides into a second hydrion ($H^{\cdot}$) and the bivalent anion ($C_5H_2N_4O_3''$). The primary dissociation is the greater one; the secondary is so slight as to be almost negligible. The more dilute the solution the greater the degree of dissociation; the more concentrated the solution the greater the number of undissociated molecules, so that in a saturated solution only about 10 per cent. of the molecules are dissociated. The number of undissociated molecules is proportional to the number of hydrogen ions in the solution, and if the latter be increased, for instance by the addition of a dilute mineral acid, the number of undissociated molecules of uric acid becomes immediately augmented, and, since it is the undissociated acid which is extremely insoluble, a part of it will fall out of solution as a precipitate. This explains why the presence of other acids in solutions of uric acid decreases the solubility of the latter.

Corresponding to the two anions above mentioned, the univalent and the bivalent, uric acid yields with bases two series of salts, the so-called urates. Thus, if to a suspension of uric acid there be added a solution of sodium hydrate (NaOH), the uric acid will disappear and, instead, the primary urate of soda (acid urate, biurate, or, better named, mononatrium urate) will fall down as a precipitate; after the uric acid has all been changed in this way the primary urate in turn will be transformed by the further action of NaOH into the secondary urate (neutral urate, or, better, dinatrium urate), and this, being easily soluble, quickly dissolves. Now add any acid to this solution of dinatrium urate and uric acid will at once fall out of solution.

A study of mononatrium urate has shown that it has the tendency to be precipitated in the form of transparent amorphous spheres and that, on standing, these spheres become gradually transformed into needle-shaped crystals; there is no change in chemical composition, simply an alteration of the physical form. The amorphous spheres yield with water certain opalescent (or even clear) false solutions—the so-called colloidal solutions; such colloidal solutions may contain an enormous quantity of urates, far more than can be dissolved in the same amount of water to make a genuine solution. On standing the colloidal solutions gradually give rise to saturated genuine solutions and the excess of urates present then falls out in the form of the crystalline salt.

The English investigator, Roberts,[3] has postulated the existence of a so-called quadriurate of soda, each molecule having the composition ($C_5H_3N_4O_3Na + C_5H_4N_4O_3$); if the substance really exists, it would be better called heminatrium urate, but there is no valid evidence that it does exist. As Tunicliffe and Rosenheim[4] have suggested, Roberts probably had to deal with variable mixtures of uric acid and mononatrium urate. As far as can be seen at present, we have to consider only two sodium salts of uric acid, mononatrium urate ($C_5H_3N_4O_3Na$) and dinatrium urate ($C_5H_2N_4O_3Na_2$).

The bearing of these chemical and physical studies of uric acid and the urates on the problems of the urinary excretion in health and in disease will be obvious as we proceed with this review.

THE NECESSITY OF SPECIAL TRAINING FOR ADMINISTRATIVE MEDICAL WORK.

Every state has hospitals for insane, prisons, asylums, the best management of which requires special training and expert knowledge. Our state boards of health should be composed of experts in matters relating to public health. On the state boards of medical examiners one naturally would expect to find expert students of educational questions, able and ready to devise methods of examination in harmony with modern principles of pedagogy. In every city there is a health department of the municipal administration, which is charged with all questions relating to municipal health matters and which, in the larger cities, has developed into a complex organization requiring the highest degree of expert knowledge and training in public health science.

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[2] His, W., Jr.: Physikalisch-chemische Untersuchungen über das Verhalten der Harnsäure und ihrer Salze in Lösungen, Verhandl. des xviii Kongr. f. inn. Med., 1900, 425; also His, W., Jr., u. Paul, Ztschr. f. physiol. Chem., xxxi, 1900, p. 1.

[3] Roberts, W.: On the Chemistry and Therapeutics of Uric Acid, Gravel and Gout (Croonian Lectures), London, 1892.

[4] Tunicliffe, F. W., and Rosenheim, O.: Contribution to Our Knowledge of Uric Acid Salts, Lancet, lxxviii, 1900, p. 1708.

Every large city has one or more hospitals for its sick poor, for contagious diseases and the like, and here again the best results are obtained from special training and knowledge.

In all these undertakings expert knowledge and special training are desirable, both from the point of view of immediate usefulness as well as from that of organization for future development in the right direction. Probably no physician will question the correctness of the principle involved, which is followed in all our great universities, in educational institutions generally, in commercial and industrial affairs, in short in all undertakings in which men hope to accomplish something worth while and to make progress. In the practical application of this principle to the administration of public institutions and public work of a medical character, however, the medical man in this country seems to have but a lukewarm interest, and hence it is not so remarkable that, in some of our largest cities, public hospitals with hundreds of beds are directed by non-medical men whose first acquaintance with hospital matters dates from the day of their appointment as superintendents. All the evils that may result from entrusting public institutions to the care of men without expert knowledge or training are illustrated in the history of many of our municipal hospitals, and other equally curious administrative anomalies of a similar character are readily cited.

This condition of affairs naturally delays progress, maintains a low degree of efficiency (or a high degree of inefficiency), and lessens the respect of people in general for the medical and allied professions, so far as their public activities are concerned. Because it is right, because it is in the interest of medical and scientific progress, the members of our profession should everywhere place themselves on the side of fitness as against "pull," of knowledge against ignorance, of progress against stagnation, when positions requiring expert knowledge in matters medical and scientific are to be filled.

A COUNTY SOCIETY'S WORK IN PUBLIC DEFENSE.

The work of the Omaha (Douglas County) Medical Society deserves commendation. The society proposes to defend, before the Supreme Court, the decisions repeatedly made in the lower courts denying the right of a corporation to practice medicine. The details are given in our news columns this week. We hope that the Omaha profession may be successful in this endeavor. An "institute" which is apparently able to evade the law, as this one did, is a public menace, and the sooner its status is made clear the better. This is another evidence of what a wide-awake county society can do.

THE CANAL COMMISSION AND SANITATION ON THE ISTHMUS.

The report of Dr. Charles A. L. Reed on the remarkable state of affairs revealed during his recent visit to the Isthmus of Panama, and presented by him in person to the Secretary of War March 2, is published in full in this issue. The revelations will be of deepest interest to the entire medical profession, by whom they will be accepted as a complete justification of the attitude of the President and of Secretary Taft toward the Isthmian Canal Commission.

THE PURE-FOOD BILL AGAIN FAILS.

Congress has adjourned without passing the pure-food bill. Those who deliberately adulterate the food of the people with poisonous substances have won again—with the assistance of certain senators who ought instead to be engaged in the protection of the people. The chief obstructionists have been Senators Platt of Connecticut and Spooner of Wisconsin. Something appropriate should be done to them by their respective constituencies. Senator Heyburn of Idaho and his supporters, Senator McCumber of North Dakota and others, deserve great praise for their manly fight against the specious objections made to the bill. It should bring a blush of shame to the cheek of every citizen of this country to know that dishonest manufacturers have so powerful an influence in the United States Senate that a pure-food law can not be passed. We trust that a wave of popular indignation will force this bill through the next congress. The poor senate has so many moneyed interests to look after that it can not devote its time and attention to the daily food of the common people. But the fight is still on. Let no one be discouraged. Pure-food legislation shall be passed.

ONE RESULT OF BETTER ORGANIZATION.

Since the reorganization of the Michigan State Medical Society a radical change has taken place. It has now become one of the most active organizations in the country, and there has been evidence of this in various ways during the last year or two. One of the recent evidences of what organization can do is illustrated in the nomination of Dr. Sawyer, one of the well-known physicians of the state, as a member of the board of regents of the State University. There has been some friction between the board of regents and the medical profession on account of the admission of those able to pay to free treatment in the University Hospital. At the meeting of the council of the state society some weeks ago a suggestion was made to get a physician on the board of regents, and Dr. Sawyer's name was endorsed. The different councilors went back to their respective districts and succeeded in arousing each of the county societies quietly to take action, and they succeeded in influencing a sufficient number of delegates to get their man nominated. For this office nomination is usually equivalent to election. This is another fact to add to those already on record that the organized profession is a power in politics, as well as in other matters, when it undertakes to do something that is for the interest of the profession as well as for the interest of the people.

REGULATION OF OSTEOPATHY IN NEW YORK.

It is by no means certain that the bill to regulate the practice of osteopathy in New York will meet the defeat which it deserves. At a hearing on the bill in Albany the senate chambers were packed with the advocates for this bill, while the great body of physicians of the Empire State were represented by not over a dozen men to oppose it. This fact shows the indifference of physicians in the Empire State to matters of such vast importance, not only to the profession but to the people. Would that the profession were united and not divided as it is, so that when necessary it could meet such questions with a solid front and be backed by the machinery of a strong organization. We hope the time is not far distant when such a happy state of affairs will prevail. A committee such as that which met the legislators can do little of itself without a strong backing. This it evidently did not have. The bill, as we understand it, would give the osteopaths the same rights that physicians have, except those of giving drugs and of performing major surgical operations. But it is well to remind those interested that the osteopaths are not limiting themselves to their massage methods in those states in which they have the right to practice and in which they have become established. They no sooner get the inch than they take the ell. They limit themselves to their peculiar methods only so long as it is absolutely necessary, and no longer.

A DOCTOR IN POLITICS.

Philadelphia seems to have a very bad name on account of its municipal politics. It has been called "corrupt and contented." Perhaps this description applies to the people generally. There is one man, a physician, who evidently is not one of the "contented" ones. We received a pamphlet entitled "An Experience of a Republican Citizen of Corrupt and Contented Philadelphia," by Dr. John B. Roberts, who, with the aid of documents, shows the sorry conditions existing in the "City of Brotherly Love." Above all, however—and this is the point to which we wish to call attention—it is to be noticed that a physician has been doing an excellent work quietly and persistently. Dr. Roberts has been in politics, not for what there was in it, evidently, but to help purge his city of some of the corruption that seems to infest it. His work has extended from 1902, when he was appointed overseer of the election, until his final letter to the judge of the court of common pleas, which is dated Nov. 19, 1904. We doubt not the doctor is still at it. We know that Dr. Roberts is not the only member of our profession in Philadelphia who is earnestly striving to bring about a better condition of things. We mention him because he has evidently been one of the leaders. Neither is it only in Philadelphia that there is corruption, or that the physicians are among those who are trying to overcome the corruption. In fact, this is one of the noticeable facts—wherever there is a work of reform, physicians will be found among the leaders. Nine times out of ten their influence is on the better side. Once in a while we find some (here the one-tenth part comes in) who are politicians in the bad sense of the word—in politics for all there is in it. Such need no praise; they get what they are after—sometimes—and need no commendation.

THE ENFORCEMENT OF ANTI-SPITTING LAWS.

In several parts of the country within the last two or three weeks there has been a salutary revival of the crusade against the spitting nuisance. That there has been need of such a move needs no argument, but its occurrence is good evidence of the educational work that has been done within the last two or three years. Before that time prosecutions for this offense were often thrown out of court and it was practically recognized as one of the rights of the citizen that he might spit when and where he pleased. Now, while the victims of arrest express some indignation, they are nevertheless promptly fined, and the public generally is in accord with the authorities on this subject. Necessarily, the enforcement of the law is likely to be more or less spasmodic, but its necessity will diminish with each raid on the spitters in public places. Many of them are merely thoughtless, and an occasional reminder that it may be unsafe is sufficient to break the habit, even if it is only from reading the police court records in the daily press. Others may be more obstinate, but an occasional arrest or fine will go a long way toward inducing reform in manners and morals. As long as only spitting on the sidewalks and in public conveyances, etc., is attacked, there is no great hardship. If a person needs to spit he can go to the curb and spit in the roadway. Of course, this is not the sanitary ideal, but it is at least a long step in advance toward better things. Let the good work go on.

Medical News.

CALIFORNIA.

Dispensary Open.—The College of Physicians and Surgeons, Los Angeles, opened its free dispensary department, February 22. The department is under the control of the trustees of the college.

Bequests.—By the will of Mrs. Leland Stanford $10,000 is devised to the California Woman's Hospital, San Francisco; $10,000 to the Children's Hospital, San Francisco, and $5,000 to the San Jose Sanitarium.

January Deaths.—During January 1,153 deaths were reported, equivalent to an annual mortality of 16.08 per 1,000. Tuberculosis caused 166 deaths; pneumonia, 157; heart disease, 139; cancer, 52; diarrhea, 32; bronchitis, 17, and diphtheria, 16.

Unlicensed Practitioner Fined.—"Dr." G. S. Hollister, Halfmoon Bay, was convicted of practicing medicine without a license, and was fined $250. He claimed to be a graduate of the University of Michigan, but had neglected to obtain a certificate from the State Board of Medical Examiners.

Cancer Specialist Acquitted.—F. M. Hogue, San Jose, a so-called cancer specialist, who was prosecuted at the instance of the Santa Clara County Medical Society for practicing medicine without a license, and testified that he removed a cancer from the complainant, was nevertheless acquitted by the jury.

COLORADO.

Convicted of Assault.—Dr. Emmett E. Sonnanstine, Colorado Springs, charged with repeated criminal assaults, was found guilty, February 3, and sentenced to imprisonment for not less than five nor more than six years in the state penitentiary, at hard labor.

Personal.—Dr. Edward B. Trovillion, Gold Hill, has been appointed physician of Boulder County.——Dr. Charles Dyde, Greeley, has been appointed a district physician of Weld County.——Dr. Sherman T. Brown has succeeded Dr. Thomas H. Hawkins as president of the medical staff of St. Anthony's Hospital. Denver.——Dr. James B. Devlin, Denver, has been seriously ill with pneumonia.

January Health and Deaths.—During January 87 cases of diphtheria, 77 of scarlet fever, 76 of typhoid fever, and 61 of smallpox were reported in the state. This is a decrease of 47 cases of typhoid fever, 21 cases of diphtheria, and 6 cases of scarlet fever, and an increase of 25 cases of smallpox, as compared with the previous month. As compared with January, 1904, the decrease is general—449 cases of typhoid fever, 131 of scarlet fever, 81 of diphtheria and 26 of smallpox. The deaths for the month amounted to 917, equivalent to an annual death rate of 16.63 per 1.000. Diphtheria and typhoid fever each caused 15 deaths, scarlet fever 6, and smallpox 1.

GEORGIA.

Smallpox has invaded Babcock's convict camp in Miller County. Three cases have developed, and all of the convicts in the camp have been vaccinated.

Presbyterians Will Build.—The Presbyterians of Atlanta have decided to erect a new building for the Presbyterian Hospital, at a cost of $50,000, within 5 years.

Personal.—Dr. Walter E. Edwards, Cordele, has been appointed assistant surgeon of the Fourth Infantry G. S. T., with rank of first lieutenant.——Dr. Robert B. Barron, Macon, chairman of the city board of health, was operated on for appendicitis, February 20, and is making satisfactory progress.

IDAHO.

Board Sustained.—In the case of Dr. J. J. Raaf, who appealed from the action of the State Board of Medical Examiners, in denying him a license to practice, District Judge Lyttleton Price decided that the appellant was not entitled to his license, and rendered judgment in favor of the defendant.

District Society Meeting.—The South Idaho District Medical Society will meet in Boise, April 6, following the meeting of the State Board of Medical Examiners.

ILLINOIS.

Smallpox.—During the past week the State Board of Health has inspected smallpox cases in Fulton, Hancock, Sangamon and Vermilion counties.

Conditional Gift to Hospital.—W. H. Parlin, Canton, has agreed to give $2,000 to the building fund of the Canton Hospital, provided that $18,000 additional is raised.

Polyglot Consumption Circular.—The State Board of Health, in compliance with requests, is having printed for general distribution an edition of its circular on the causes and prevention of consumption, in Bohemian. Jews, Poles and Italians have asked to have the circular printed in their respective languages.

Personal.—Captain Amos F. Moore, Dixon, assistant surgeon Ill. N. G., assigned to Sixth Infantry, has been directed to reorganize the hospital corps of that regiment.——Dr. James H. Parcell, an aged physician of Westfield, has been adjudged insane and has been committed to the Illinois Southern Hospital for the Insane, Anna.

Medical Bills.—Senate bill 171, providing for the appointment on the State Board of Health of two regular, one homeopathic, one eclectic, one physio-medical and one osteopathic member, has been favorably reported on by the committee on judiciary department and practice.——Senate bill 171, revising the present Medical Practice Act, providing for the regulation of regular, homeopathic, eclectic, physio-medical and osteopathic practice, is being considered by the committee on license and miscellany.——Senate bill 225, for an act to establish a state board of examiners of registered nurses, and Senate 226, for an act to regulate the practice of dental surgery, have been approved by the committees to which they were referred.——Representative (Dr.) Monroe G. Reynolds, Aledo, has introduced a bill (House 414) making it the duty of the State Board of Health to see that diphtheria antitoxin be kept in each county seat in the state for sale to physicians, and that supplies be furnished to the poor free of charge on the order of the overseer of the poor. This bill has the endorsement of the State Board of Health.

Chicago.

Personal.—Dr. G. Frank Lydston has been made a fellow of the London Society of Authors.——Dr. O. E. Wald has been made surgeon-in-chief to the La Salle Hospital.

Held Blameless.—In the suit brought by H. O. Pearson against Dr. Harry H. Rittenhouse, in which $15,000 damages was claimed because of the alleged neglect of the physician, the jury found for the defendant.

Peril in Hospital Fire.—At a fire which broke out in the Chicago Union Hospital, March 2, the nurses and attendants carried the 14 patients safely from the burning building and then aided in preventing the spread of the flames until the fire companies arrived. The building was damaged to the extent of about $2,500.

Mortality of the Week.—During the week ended March 4, 627 deaths occurred, equivalent to an annual mortality of 15.94 per 1,000. Pneumonia still leads, with 117 deaths; consumption caused 73; heart diseases, 43; violence, 36; bronchitis, 35, and Bright's disease, 33. Smallpox caused 3 deaths; diphtheria, 9; scarlet fever, 3; typhoid fever, 3; measles, 1, and whooping cough, 7.

Grace Hospital Opened.—This new hospital in the manufacturing district of the west side was opened February 18. Dr. Alexander M. Harvey is president of the institution, and the staff is as follows: Drs. C. C. Byrne, John S. Nagel, Frank A. Phillips, Morley D. Bates, J. J. Anderson, Adolph E. Bertling, Alexander A. Whamond, W. Franklin Duckett, Calvin W. Harrison and Howard Crutcher.

Lower Mortality in February.—There were 284 fewer deaths reported during February than during the corresponding month of 1904, and the death rate is a little more than 10 per cent. less. There is still, however, a serious excess over the usual proportion of deaths among infants and young children. Of the total 2,421 deaths at all ages 854 were of children under 5 years of age. This is an excess of nearly 40 per cent. over the average proportion, which is about 25 per cent. of the total.

Pneumonia and Consumption.—There were 162 fewer deaths from pneumonia—nearly 24 per cent. less—than during February, 1904; but the consumption mortality remains substantially unchanged—285 and 278 respectively. Since the beginning of the current pneumonia season, Oct. 1, 1904, up to date, March 4, 1905, there have been 1,299 deaths from consumption and 1,936 from pneumonia, out of a total of 11,350 from all causes. These figures give proportions of 11.4 per cent. of the total mortality for consumption, 18 per cent. for pneumonia, and an excess of 49 per cent. of pneumonia over consumption.

INDIANA.

Osteopath Fined.—"Dr." W. A. Bush, an osteopath of La Grange, was fined $25 for practicing medicine without a license.

State Laboratory of Hygiene.—The bill providing an appropriation of $15,000 for the establishment and maintenance of a state laboratory of hygiene under the direction of the State Board of Health, has passed both houses of the legislature, and has been signed by the governor and made a law.

New Southern Hospital for the Insane.—The governor has signed Senator Newhouse's bill, which appropriates $560.000 for the establishment and maintenance of an additional hospital for the insane in a district comprising 16 of the southeastern counties of the state. A commission of three members will decide the location of the hospital.

Personal.—Dr. Edwin Walker, Evansville, has returned from Europe.——Dr. Robert F. Palmer, Frankfort, has been appointed chief surgeon of the Clover Leaf System, vice Dr. Samuel S. Thorn, Toledo, Ohio, resigned.——Dr. Robert W. Harris has been elected president, and Dr. Charles W. McIntyre secretary of the New Albany Board of Health.——Dr. Charles H. Eckert has been appointed local surgeon at Marion for the Clover Leaf System, vice Dr. Thomas C. Kimball.

Afflicted.—Dr. Walter R. Francis was taken seriously ill while making calls in Marion, February 10, but is convalescent. ——Dr. Granville O. Newton, Dana, was thrown from his buggy near Hillsdale, February 19, and sustained a comminuted fracture of the forearm.——Dr. Henry F. Barnes, Indianapolis, fell while attempting to board a street car, February 24, and sustained serious injuries about the head and body.——Dr. Cassius E. Van Matre, New Castle, has been seriously ill with septicemia from an infected wound of the left hand, but is now improving.——Dr. William H. Mills, Boonville, was seriously bruised about the head in a runaway accident, March 1.——Dr. George Knapp, Vincennes, was "held up" and robbed of about $8, near Lyles Station, February 26.

KANSAS.

Personal.—Dr. Harvey A. Warner, Topeka, has been made second vice-president of the National Fraternal Sanatorium for Consumptives.

No Sanitarium for Western Kansas.—The senate, on February 22, refused to pass a resolution providing for a commission to consider the advisability of establishing a sanitarium for consumptives in western Kansas.

Smallpox.—Horton is reported to have 108 cases.——Two students of the University of Kansas, Lawrence, have smallpox and have been removed to the isolation hospital on Addis Island.——Neosho Rapids primary schools have been closed because the teachers are quarantined in Emporia on account of smallpox.

MARYLAND.

Women to Build Hospital.—The Woman's Christian Temperance Union of Crisfield has taken up the work of establishing a public general and marine hospital at that place. It is working steadily to raise funds and is meeting with encouraging success. Crisfield is on Chesapeake Bay and is a great center for oystermen and boatmen.

Emergency Hospital Report.—The third annual report of the Emergency Hospital, Annapolis, shows receipts for the year of $4,220, viz., state $2,500, city $500, county $200, pay patients $620, other sources $400; balance in bank, $700; $1,358 was paid out in salaries and wages. During the year 50 patients were treated. Dr. George Wells is chief of the medical staff.

Baltimore.

Deaths and Births.—During February there were 883 deaths, 26.16 per cent. being under 5. The deaths from consumption and pneumonia showed a gratifying decrease. Only 667 births were reported.

Tuberculosis Lectures.—A series of lectures is being delivered at the various churches under the auspices of the Baltimore Tuberculosis Association, in the education of the public regarding that disease. Dr. Harry Lee Smith delivered the first of the series, March 2, and a senior student demonstrated the tubercle bacilli to the audience.

The Struggle Against Phthisis.—A public meeting of the Maryland Association for the Prevention and Relief of Tuberculosis was held March 7. Dr. Lawrence F. Flick, director of the Henry Phipps Institute of Philadelphia, spoke on "The Hospital and the Dispensary in the Warfare Against Tuberculosis," and Dr. Henry M. Hurd spoke on "Tuberculosis in Its Social Bearings."

MASSACHUSETTS.

Faulkner Hospital.—The first annual report of the Faulkner Hospital, Jamaica Plain, shows that during the year ended Nov. 1, 1904, 324 patients were cared for, for 5,973 days. The total expenses were $22,394, of which $7,712 was derived from payments by patients. The average number of patients daily was 16, in charge of 16 nurses.

Poor Overseers' Report.—During 1904 the agents of the Overseers of the Poor of Boston made 23,000 visits on 2,300 families, distributing $20,000 in cash and $60,000 worth of groceries. Owing to the activity of various charitable organizations this is less than was dispensed 25 years ago, although the population has greatly increased. About one-fifth of this sum was given to families deserted by the husbands, and one-fourth was given to families the heads of which were drunkards.

Personal.—Major Charles M. Green, for many years surgeon of the First Corps of Cadets, Boston, has retired. He was made assistant surgeon in 1881, and retires as a lieutenant colonel. ——Dr. J. H. Wright, director of the Pathological Laboratory of the Massachusetts General Hospital and Instructor in Pathology at the Harvard Medical School, has been awarded the Gross prize of $1,200, given by the trustees of the Philadelphia Academy of Medicine, for his study into the "Biology of the Micro-organism of Actinomycosis."—The Board of Health of Cambridge has chosen Dr. Allen M. Barnes as bacteriologist and has requested the resignations of John J. Scott and Dr. Charles T. Weeks as members of the board.

MICHIGAN.

Blaze at Hospital.—Flint Hospital had a second fire alarm, February 28. The roof took fire, but the fire companies extinguished the fire with a loss of about $150.

Founder's Day.—At the exercises of Founder's day, February 22, the Ann Arbor Medical Society was given a portrait of the late Dr. Palmer, and a reception was tendered Dr. and Mrs. Arthur R. Cushny, who will leave soon to reside in London, England.

National Guard Changes.—Major Julius F. Henkel has been made lieutenant colonel and assistant surgeon general; Captain Vernon J. Hooper has been made major and surgeon; Lieutenant James E. Mead, captain and assistant surgeon, and Dr. Samuel C. Gurney, first lieutenant and assistant surgeon, all of Detroit.

Comparative Disease Prevalence.—For February, 1905, compared with the average for February in the ten preceding years, smallpox and cholera morbus were more than usually prevalent; and pneumonia, inflammation of kidney, erysipelas, scarlet fever, inflammation of bowels, intermittent fever, measles, diphtheria, remittent fever, whooping cough and dysentery were less than usually prevalent.

The Most Dangerous Communicable Diseases.—Meningitis was reported present during February at 7 places; whooping cough at 16 places, diphtheria at 64 places, measles at 68 places, typhoid fever at 93 places, scarlet fever at 105 places, smallpox at 106 places, pneumonia at 142 places, and consumption at 251 places. Meningitis was reported present at 8 places less, whooping cough at 6 places more, diphtheria at 19 places less, measles at 5 places more, typhoid fever at 15 places less, scarlet fever at 4 places less, smallpox at 2 places more, pneumonia at 41 places more, and consumption at 16 places less, in the month of February, 1905, than in the preceding month.

NEBRASKA.

Approve License of Outsiders.—The Lancaster County Medical Society, at a meeting held in Lincoln, February 8, adopted the following resolution:

> *Resolved,* By the physicians of Lancaster County, that, whereas some misapprehension exists among people outside of the medical profession, the physicians hereby declare that the present bill (H. R. 165) acted on favorably to-day by the lower branch of the Nebraska Legislature, is not an effort to limit or to destroy the method of practice of any individual or any sect engaged in the care of the sick. The bill is simply an effort to remedy a condition which exists, at present, whereby men and women unable to recognize the character or seriousness of disease are permitted to attend all classes of sick persons. Under the new law, Christian science, osteopathy, magnetic healing, or any other system which possesses virtue in the care of the sick, may be practiced the same as heretofore, but it will be required of such practitioners that they shall first pass an examination before a state board of health, showing ability to recognize and place under quarantine, if necessary, cases of acute or chronic contagious diseases. Physicians are ever at the front in matters pertaining to the health and welfare of the community and state, and wish to commend those members of the legislature who lent their influence and votes to recommending the passage of the present bill.

Can a Corporation Practice Medicine?—The Omaha-Douglas County Medical Society, February 28, took up the question of assuming the responsibility of carrying to the Supreme Court the case of the State Board of Health vs. the State Electro-Medical Institute. The importance of the matter is indicated by the fact that the case carries with it the question as to whether a corporation can be licensed to practice medicine. There is great difficulty in reaching corporations through a suit for revocation of license to practice. The work of these institutes has been carried on impersonally, no name being mentioned in advertisements or contracts. If the State Board of Health brings suit to revoke the certificate of any physician connected with the corporation, the defense is that he has nothing to do with the advertising. The effect of a favorable decision in the case named would be to make these men come out in the open and practice under their own name and responsibility. Dr. A. B. Somers, a member of the state board, thus stated the case: The institute sued a farmer for its fee. His attorneys took the position that a corporation had no right to practice medicine, and hence could not sue for such a fee. The judge of the District Court decided that this position was well taken. A new trial was secured, and the same decision was made by another judge of the same court. At this stage, two members of the society, Drs. Somers and Crummer, took up the case and instituted a prosecution against the institute for practicing medicine illegally. They employed the same attorneys who had defended the farmer and agreed to give them $100. The society then took up the question and paid the fee of $100. Again the case was won, and the judge of the District Court decided that the institute could not legally practice medicine. From this decision the institute appealed to the Supreme Court. The question before the society was as to whether the society should abandon the case at this stage or should guarantee another fee of $100 and about $30 expense to carry the case up and secure a final decision. A favorable decision would forever bar all corporations of this character from practicing, and it was regarded as of vital importance that the matter be pressed. After full discussion, pro and con, it was unanimously decided that the society should guarantee the sum of $130, and should carry the case to the Supreme Court.

NEVADA.

Personal.—Dr. William F. Burnett, Eureka, has been reappointed physician of Eureka County.

Irregular Convicted.—"Dr." F. H. Welchman, Lovelock, accused by the State Board of Medical Examiners of practicing medicine without a license, was convicted, February 3, on a third trial. At the first two trials the juries disagreed.

Warning.—An individual calling himself "Dr. D. W. Smith" and claiming to come from Florence, Colo., has recently visited Eureka, began practice, established a "People's Drug Store," and levanted on February 25 with many articles not belonging to him. He was pursued to Palisade, Nev., and the goods found in his baggage. He was released on payment of $75 and return of the goods taken. He stated that his destination was Vleits, Kan.

NEW JERSEY.

Bequest to Hospital.—The late Mrs. Mary E. Ryle, Paterson, bequeathed $20,000 to the Paterson General Hospital.

To Prevent Sample Medicine Abuses.—There has been passed in Atlantic City an ordinance prohibiting the distribution of medicines, except by giving such samples to persons over twelve years of age who are willing to receive them. A fine of fifty dollars is provided.

Free Antitoxin.—On March 1 the house of assemblymen passed the bill providing for a state laboratory to manufacture antitoxin for free distribution to physicians in the treatment of diphtheria. The bill also appropriates $7,000 for the erection of the establishment and $6,000 is given for annual maintenance.

Personal.—Drs. Nelson B. Oliphant, William A. Clark and Charles F. Adams, Trenton, will go to Vienna this spring.——Dr. Lewis R. Souder, Atlantic City, has been reappointed physician of Atlantic County.——Dr. Benjamin W. McGalliard, Trenton, was committed to the State Hospital for the Insane, February 23.

Anthrax in Swedesboro.—Anthrax has been discovered in a herd of cattle in Swedesboro, and the disease is asserted to be spreading among the cattle of the neighborhood. A man who skinned one of the cows which had died of the malady contracted the disease and is in a serious condition in the Municipal Hospital of Philadelphia. The State Board of Health is making every endeavor to prevent the spread of the malady and has detailed the state veterinarian on this work.

Medical Library at Atlantic City.—A medical library has been established by the Atlantic City Academy of Medicine, and a room has been set apart in the Atlantic City Free Public Library for its books and periodicals. These will, however, be given out only to members of the academy and to their friends. Physicians visiting Atlantic City will be extended every courtesy the library can offer. Contributions on medical subjects will be gladly received and may be directed to Dr. Wm. Edgar Darnall, president of the academy, or Dr. Philip Marvel, chairman of the committee.

NEW YORK.

Bequest.—Under the will of Norton P. Otis $5,000 has been bequeathed to St. John's Riverside Hospital, Yonkers.

Bills Signed by the Governor.—A measure authorizing the Amsterdam water commission to establish ordinances for the protection of the city water supply has been signed by the governor, and also a bill authorizing the medical college laboratory of the City of New York to transfer its property to a university, college or other institution of learning.

The Coroner's Bill.—James Taylor Lewis, counsel for the New York State Medical Association, is encouraged over the outlook for the success of the Elsberg bill. Mr. Lewis says the bill will be brought up for final passage in the senate early in March, and will be speedily pushed through both houses. If Mayor McClellan vetoes it as he did last year it will probably be passed over his veto.

Outsiders Have a Hearing.—Osteopaths, Eddyites, divine healers, faith curists, mental science exponents, etc., assembled at the hearing given the bill regulating the practice of osteopathy and placing it under the jurisdiction of the state regents. John T. McDonough, former secretary of state and member of the Supreme Court of the Philippine Islands, pleaded their cause. Dr. Robert T. Morris of New York City made the principal argument in opposition to the bill. He said that one of the claims of this school was that they were able to move bones by rubbing, and to cure dislocations without the use of the knife. He produced a section of lamb showing the ribs, and called on any one of them to move one of the bones one-fiftieth of an inch.

New York City.

Appeal for Babies' Hospital.—This hospital opened in 1902, and was crowded to its fullest capacity within six months. Last summer one-third of its applicants had to be rejected. The directors now ask for $25,000 to increase the work.

Fatality from Wood Alcohol.—One man is dead, another totally blind, and several have been made ill as the result of drinking what is believed to be "moonshine" wood alcohol whisky, which was furnished to the victims who were acting as professional mourners in a Jewish synagogue on the lower east side.

Clinic on Cancer.—At the close of the course of special lectures by Dr. L. Duncan Bulkley at the New York Skin and Cancer Hospital, Nineteenth Street and Second Avenue, March 29, at 4:15 p. m., there will be a clinic on cancer by Dr. William Seaman Bainbridge of the hospital staff. A number of interesting cases will be on exhibition.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending February 25, 318 cases of tuberculosis, with 164 deaths; 292 cases of measles, with 5 deaths; 261 cases of scarlet fever, with 14 deaths; 258 cases of diphtheria, with 45 deaths; 121 cases of varicella; 5 cases of smallpox, with 1 death; and 49 deaths from cerebrospinal meningitis.

Progress of the Eye and Ear Hospital.—At a meeting of the directors of the Manhattan Eye, Ear and Throat Hospital for the consideration of the plans submitted for the new hospital, it was reported that the hospital contemplated would cost $200,000 more than had been appropriated for this purpose. It was decided to incur the indebtedness. One of the directors then contributed $25,000 to the cause.

For Charity.—Mr. and Mrs. Richard Croker have divided $5,000 among various charities as a memorial to their son. Among the beneficiaries were St. Joseph's Hospital for Consumptives, $500; St. Vincent's Hospital, $500; United Hebrew Charities, $500; Mount Sinai Hospital, $500.——The net proceeds of the German Charity Ball were more than $12,000 in excess of those of any previous ball. Of this sum the German Hospital receives $2,200; St. Mark's Hospital, $1,400; St. Francis' Hospital, $1,400; German Polyclinic, $1,400, and the West Side Dispensary, $1,000.——Two patients have given $10,000 to Roosevelt Hospital for the purpose of re-opening one of the public wards, which has been closed for some time because of lack of funds.

Gonorrheal Infections at the Babies' Hospital.—Dr. L. Emmett Holt reports the following statistics of admitted and acquired gonorrheal infection at this hospital: During the eleven years from 1894 to 1904, inclusive, there were treated 345 cases of gonorrheal infection. Of these 101 were of admitted and 172 of acquired vaginitis; 42 of admitted and 4 of acquired ophthalmia and 3 of admitted, and 23 of acquired arthritis. Of 26 cases of acute gonococcus arthritis it was interesting to note that the finger or metacarpal joints were involved 20 times; the ankle, 18; the knee, 17; the wrist, 12; the toe or metatarsal joints, 10; the shoulders, 9; the elbow, 5; the hip, 1; the temporo-maxillary joint, 1. Those aged three months or under numbered 16; during the second year 3; four to six months, 5; during the third year, 2. Vaginitis complicated 4 of these cases and ophthalmia one case.

News from the Health Department.—The advisory board of the Health Department has asked for funds for a commission to investigate cerebrospinal meningitis. The increase in this disease has been enormous. Five years ago it was hardly to be found in the city. In 1903 there were 271 fatal cases, while in 1904 there were 1,211. In January, 1904, there were 25 deaths from this cause, while in January, 1905, there were 107. In February, 1904, there were 26 deaths, and in February, 1905, there were 149.——The Health Department has contracted for a new steamer, to replace the one damaged at the time of the *Slocum* disaster.——The department has had several million very scientific anti-spitting slips printed which are to be pasted in the covers of all the books given out to children attending the public schools.——The new building for the department to be erected in Brooklyn will cost about $200,000. It will have a tuberculosis sanitarium, which will be attached to the main building. It will be tiled throughout, no material being used that will harbor germs, and it will be fitted up for scientific experiments.——Dr. Park, the bacteriologist of the health department, has submitted his affidavit as to the effect of subway signs on bacteria. He concluded from his experiments, and from his knowledge of conditions in the subway, that as a practical matter the presence of signs attached to the walls in the subway as a menace to public health is so infinitesimal that they may be disregarded for all practical purposes.

PENNSYLVANIA.

Dangerous Occupations.—Despite the precautions taken to minimize the accidents in the anthracite mines of Lackawanna County, the accidents and death roll increase. In 1902 for each life lost in Lackawanna County, when there were but two mining inspectors, there were 243,693 tons mined. In 1903 the inspectors were doubled and there were 161,898 tons mined. The report for 1904 showed the conditions are infinitely worse. There is a decrease in output and the number of lives lost is greater. The report shows that the amount of coal mined was less and the list of victims increased. The amount of coal mined in 1904 fell to 147,934 tons. This shows that the anthracite industry is fast becoming more dangerous. The reports for the year show that there were 84 fatalities from fall of roof and rock alone, while in the preceding year, with a greater output of coal, the fatalities from these causes were 64. During the preceding year there were 131, and yet for the past year, with its decreased output and correspondingly diminished risk, the total fatalities are increased by 6. In 1903 there were 67 wives made widows. In 1904, when the amount of coal mined was less, and the number of days' work less, the ranks of miners' widows were augmented by 74. In 1903 there were 141 children made orphans, while in 1904 there were 172. Demands are being made that the laws governing mines are inadequate, and that those passed about twenty years ago are practically obsolete.

Philadelphia.

Health Report.—The total number of deaths reported for the week aggregated 559, as compared with 579 for last week, and 628 for the corresponding period of last year. A decrease is noted in the number of deaths from pneumonia. Last week 90 victims were reported, or 13 less than the preceding week. Seventy-two deaths have resulted from the disease during the present week. There have been no cases of smallpox reported in the city since the middle of December last. Typhoid fever is slightly on the increase, 92 new cases being reported during the week. The principal causes of deaths were: Typhoid fever, 11; influenza, 10; tuberculosis of lungs, 72; cancer, 19; apoplexy, 34; heart disease, 51; acute bronchitis, 17; enteritis, 21; Bright's disease, 43, and pneumonia, 72.

Medical Society Receptions.—Dr. E. E. Montgomery was tendered an informal reception by the society named in his honor, of Jefferson Medical College, at the University Club, March 14.——Dr. H. A. Hare was also tendered an informal reception by the society named in his honor, of the Jefferson Medical College, at the University Club, March 7.——Dr. W. M. L. Coplin was tendered an informal reception by the society named in his honor, of the Jefferson Medical College, at the Southern Club, March 3.——Dr. Philip Coombs Knapp of the Harvard Medical School, Boston, addressed the students of Jefferson Medical College, under the auspices of the F. X. Dercum Neurological Society, on "*Brain Tumors and Their Treatment*," March 9, in the college building. A reception was given in honor of Dr. Knapp at the Art Club immediately after his lecture.

Hospital Reports.—The Presbyterian Hospital admitted 185 patients during February and discharged 173; the number remaining March 1 was 215; 1,709 cases were treated in the dispensary.——One hundred and nine patients were admitted to the Germantown Hospital, and 114 were discharged; 85 remained; 1,132 were treated in the dispensary.——The Women's Homeopathic Hospital admitted 91 patients to the wards, and treated 971 in the different dispensaries.——The Howard Hospital admitted 39 patients to the wards, treated 570 new patients in the dispensaries, compounded 3,021 prescriptions and treated 92 accident cases.——The Charity Hospital treated 833 patients and compounded 609 prescriptions.——One hundred and two patients were admitted to the Polyclinic Hospital, and 7,642 visits were made to the different dispensaries. The Pennsylvania Hospital admitted 359 patients, treated 3,203 new patients in the dispensaries, and had 4,078 visits made to the various dispensaries; 1,465 cases were cared for in the receiving ward.

GENERAL.

U. S. Consul at Cananea.—Dr. W. J. Galbraith, chief surgeon for the Cananea Consolidated Copper Company, has been appointed United States Consul at Cananea, Sonora, Mexico.

International Agreement for Safeguards Against Plague and Cholera.—March 2 the Senate ratified an international treaty, adopted by a convention of representatives of practically all nations, to agree on uniform safeguards against the invasion and propagation of plague and cholera.

No Malaria in Hawaii.—At a recent meeting of the Hawaiian Medical Association, Dr. Sinclair read a paper on malaria, in which he said: "In spite of repeated efforts, I have never found an anopheles mosquito in Honolulu, and never saw anyone able to produce one. Until I see the anopheles mosquito I will be skeptical of cases of malaria found in Hawaii, and until I see a case in which the plasmodium is demonstrable I will be unconvinced."

The Outdoor Life.—This journal, published at the Saranac Sanatorium, deals with the outdoor life of the consumptive, and the editors publish nothing which does not bear, either directly or indirectly, on this subject. Under the caption, "News of the War on Tuberculosis," a résumé is given of what is being done in this country and in Germany to stamp out tuberculosis. An article in the February issue gives a list of the sanatoriums, hospitals, etc., for the treatment of this disease. The March number has an article on "Nature Study," which should be of special interest to all "outdoor" patients.

To Study Leprosy in Hawaii.—March 4, President Roosevelt signed the bill, H. R. 17984, entitled "An act to provide for the investigation of leprosy with special reference to the care and treatment of lepers in Hawaii." The bill provides that when the territorial government shall cede to the United States, in perpetuity, a suitable tract of land, one mile square, more or less, on the leper reservation, there shall be established thereon a hospital station and laboratory of the Public Health and Marine-Hospital Service for the study of the methods of transmission, cause and treatment of leprosy. The bill also authorizes the Secretary of the Treasury to cause the erection of the necessary buildings and also authorizes the Surgeon General of the Public Health and Marine-Hospital Service to appoint medical officers and pharmacists, and to adopt regulations for the administration of the hospital station.

FOREIGN.

Prize for Work on Professional Diseases of Brewers.—The German Master Brewers' Association has announced three prizes of $100, $50 and $40 for the best work on the recognition of the professional affections of brewers and maltsters, their treatment and prevention, and on hygiene for workers in breweries in general.

London Hospital Endowment.—Mr. Edward Heron-Allen has presented $5,000 to the Westminster Hospital, London, to endow a bed in one of Dr. Murrell's wards, "in recognition of his valuable contributions to pharmacology and of his researches on the action of remedial agents in the treatment of disease."

Society for Social Medicine, Hygiene and Medical Statistics.—A new society with the above name was recently organized at Berlin. It already has 89 members, including many prominent physicians, statisticians, official hygienists, sociologists and others interested in political economy. Dr. Dietrich of the Prussian cabinet and Lassar were elected presidents.

Sanitary Measures in Madrid Churches.—We learn that the municipal authorities of Madrid have ordered that the stone floors of the various churches must be swept out each day with sawdust moistened with a solution of copper sulphate, and that the seats, benches, etc., are also to be wiped with some disinfectant. These regulations have been issued at the advice of the director of the city laboratory.

Amusing Instance of Advertising Irregular Methods.—The public has been officially warned against a certain pseudo-medical institute at Dresden. The latest issue of the official governmental bulletin for the state (Saxony-Meiningen) was accompanied by an illustrated prospectus of this same institute. The affair shows how easy it is for irregulars to find ways of advertising, notwithstanding the efforts of the authorities to suppress them.

Infringement of Professional Secrecy.—A Berlin physician warned one of his patients, the mother of several children, that her sister-in-law had a "horrid contagious affection." They all lived together, and the children frequently slept with their aunt. The sister-in-law sued the physician for damages. The experts consulted found no trace of any disease, but the physician remarked that a cure in the interim was a matter of course. The physician was fined $5.

Antiquity of the Mosquito Theory.—According to our exchanges, the governor of the Island of Ceylon has found in native works, dating from the sixth century, descriptions of various kinds of mosquitoes which are accused of being the cause of malarial fevers. The ruins and historical records of Ceylon indicate a high degree of civilization in remote antiquity. If this report proves to be true, the new mosquito theory is at least fourteen centuries old.

Fine for Reproduction of Scientific Moving Pictures.—Doyen of Paris brought suit last year against the firm of photographers who had made his series of moving pictures of some of his operations. They had reproduced the pictures as a sideshow at fairs and elsewhere throughout Europe, and Doyen demanded $40,000 damages and publication of the details of the fine throughout the country. He had the cinematographs made to serve solely for instruction in surgery. The courts decided that the photographs were the property of Doyen alone, and condemned the photographers to a fine of $1,600 and publication of the verdict in fifteen journals.

Medical Aspect of the Cervantes Tercentennial.—The physicians of Madrid have arranged a medical festival in May to aid in celebrating the three hundredth anniversary of the publication of Don Quixote. Ramon y Cajal will deliver an address on the "Psychology of Don Quixote and Quixotism"; Oloriz on the "Physical Anthropology of Don Quixote"; Ocaña on "Hygiene in Spain in the Seventeenth Century"; Lazaro on "Botany" at that epoch; Pulido on the "Expulsion of the Moors," and the prime minister of the realm on "Sancho Panza's Governorship of Barataria Island." The festival meeting will be held in the opera house, and will be presided over by a cabinet minister.

LONDON LETTER.

The Financial Relations Between the London Hospitals and the Medical Schools.

At the instigation of the anti-vivisectionists, who alleged that money given to the London hospitals for the benefit of the patients is devoted to the maintenance of the attached medical schools, a committee was appointed by the Prince of Wales, the president of the King's Hospital Fund, which raises a large sum annually for the support of the hospitals—in 1903, $400,000—to inquire into the following questions: 1. Whether any, and if any, how much money given for the relief of the sick poor to the twelve London hospitals having medical schools is contributed by those hospitals directly or indirectly for the maintenance of medical education. 2. Whether any direct or indirect return for such contributions is received by the hospitals from the medical schools, and if so, whether such return is equivalent to the amount of the contributions. The committee has now presented its report—a lengthy document containing many statistics. Between the schools and the hospitals very intimate and complicated arrangements have grown up, and the committee were confronted with almost insuperable difficulties in the preparation of a statement showing the cash value of the balance between contributions in money or kind made by the hospitals to the schools, and by the schools to the hospitals; and this altogether apart from the value of the work done by the schools for the hospitals. In the cases of several of the hospitals (St. Mary's) the hospital and school were founded together, and the school as well as the hospital appears to have been an object of bounty in the mind of the founders; in some cases (University College Hospital) the hospital was founded as an aid to the school; in some cases (Charing Cross and Westminster hospitals) the school buildings were provided, or partly provided, by money subscribed for the specific purpose or for a joint purpose of which the provision of school buildings formed a part; in other cases sums have been contributed to hospitals subsequent to the foundation, of which, to the knowledge of the donors, a portion was applied to the school (e. g., the London Hospital) where a contribution to the school has been made yearly under resolutions passed at meetings of the subscribers entitled to vote under the rules; where the hospital and school (e. g., the Middlesex Hospital) form a single conjoint institution, and contributions have been made to that institution it is obviously impossible to say how much was given for the relief of the sick poor and how much for the promotion of medical education. Frequently the ground on which the school buildings stand is the property of the hospital, but the buildings have been erected by the school. In some cases, parts of the hospital buildings are used conjointly for the purposes of hospital and school, especially in the case of pathologic and bacteriologic laboratories. In the case of King's College Hospital and University College Hospital, the committee report that no money subscribed to them in the year 1903 (the last year of which the accounts are complete) was used directly or indirectly for the maintenance of medical education. In the cases of Guy's and the Royal Free hospitals the committee doubt whether the schools derive any pecuniary benefit from the hospitals. In the case of all the other hospitals—Charing Cross, the London, the Middlesex, St. Bartholomew's, St. George's, St. Mary's, St. Thomas's, the Westminster—contributions, direct or indirect, were made in 1903 to the schools out of the funds of the hospitals. On the question whether any return is made from the schools to the hospitals the committee finds that in some cases the fact that a large body of students is being educated in a hospital diffuses a wide interest in that institution, and thus tends to aid its finances. The presence of students also has a tendency to keep the medical staff on the alert and to counteract the daily routine of duties, and that the opportunity for teaching attracts to hospitals the gratuitous services of the most eminent men in the profession. It was urged before the committee that the great amount of work done without payment by students as medical clerks and dressers constitutes a pecuniary advantage to the hospital; but the evidence satisfied the committee that the expense incurred in hospitals with schools is generally in excess of those in hospitals without schools. The committee, therefore, reports that no saving of expense results. On the question whether the return received by the hospital from its school is equivalent to the contribution to the school the committee say that as the returns are of a general kind and can not be reduced to figures they can not reply categorically, but they conclude that the schools confer considerable benefits on the hospital and the hospitals provide a clinical school for the students so that the one may be set off against the other. The committee recommends that in future the distinction between the hospital and the school should in every case be drawn with such clearness that it may be understood by the public, so that no questions may arise as to the destination of moneys contributed, whether from the king's fund or any other source.

Dirt and Infant Mortality.

Dr. J. Robertson, health officer for Birmingham, has issued an important report, in which he traces a special connection between high infant mortality and dirty houses. In Birmingham, which may be taken as representative of large towns generally, over 3,000 deaths occur annually in infants under the age of one year, as compared with 35 deaths at each yearly period between the ages of 5 and 25. While the general sanitary improvement has resulted in an almost continuous decline of the death rate, practically no improvement has taken place in the infant mortality. In the third quarter of the year, there is a remarkable rise in the infant mortality: in infants under the age of one year there were 1,682 more deaths than in the first quarter. The principal causes of death during the last five years are in order of importance: (1) diarrhea and enteritis, (2) debility and marasmus, (3) bronchitis, pneumonia and pleurisy, (4) premature birth, (5) convulsions. From year to year the death rate varies considerably, and very much in proportion to the duration and amount of warmth in summer. The conditions existing in a large town like Birmingham produce a mortality double that of small towns. Dr. Robertson thinks that a good deal of the difference is due to local customs, certain methods of feeding and rearing infants being handed down from mothers to daughters in particular areas which probably exert a powerful influence for good or evil. In different parts of Birmingham there are striking differences in the infant death rate, the highest rate showing an excess of more than 300 per cent. over the lowest. There is a close connection between the infant mortality and domestic conditions. Many of the small houses are damp and badly constructed, and in unhealthy surroundings. The inhabitants are of dirty habits, which make their domestic conditions still worse. Dr. Robertson thinks that the infants brought up in these dirty places are injured as much by sucking house dirt from their fingers, toys and clothing as from the dirty milk supplied. Some instructive figures are given as regards suckling. In the artisan class, healthy babies under the age of 6 months are fed as follows: Breast, 56.5 per cent.; breast and bottle, 28.7; bottle only, 14.4. The deaths of 236 children under the age of 6 months from epidemic diarrhea gave the following figures: Breast fed, 10 per cent.; breast and bottle, 10 per cent.; bottle only, 80 per cent.

Enormous Increase of Cancer in the County of Somerset.

From time to time attention has been called in The Journal to the increase of cancer in England, in recent years. Statistics which have just been published show an increase in the mortality from this disease in the county of Somerset. Among the half million inhabitants, 458 deaths from cancer have occurred in one year, making about 7 per cent. of the total mortality from all causes. No special cause can be assigned for the remarkable increase.

Correspondence.

Quinin in Pneumonia.

Philadelphia, Feb. 25, 1905.

To the Editor:—In reply to your correspondent's inquiry which you have referred to me concerning the use of enormous doses of quinin in pneumonia, as reported by Dr. Galbraith in The Journal, Jan. 28, 1905, p. 291, I would say that as a matter of theory I should have expected to kill, or certainly to injure, patients if I had given doses of 75 and 100 grains inside of two hours; but when a reputable physician reports the use of the drug in this heroic way in 50 cases without a death either from the disease or from the remedy, I am compelled to revise my theory. My only experience at all comparable is this: Some ten years ago, in the winter, I forget at the moment the exact date, I saw at about 12:30 a. m. a man 35 years of age who had had a chill at 11 p. m., and who, when seen one and one-half hours later, was feverish (temperature about 105 F., pulse about 120), with slight cough, with pain in the right side, and with very slight impairment of resonance and many unquestionable crepitant râles over a considerable area at the right base posteriorly. I ordered 10 grains of quinin to be given at once and 10 grains six hours later. Through some mistake, the patient was given 10 grains every hour for six, or possibly for eight hours, the result being that the probable attack of pneumonia was apparently cut short. At all events, and much to my surprise, the patient showed no ill result—not even tinnitus—from the quinin, and the fever, cough and physical signs disappeared—in an order, and at a speed, that I can not state definitely in the absence of my notes. Yet I have been afraid to repeat deliberately the accidental dosage and I have not placed the case formally on record. The theory that quinin will cut short pneumonia is old, and has been advocated by many eminent men, but the fact that the practice has not become general shows that either the fact is otherwise, or that we have all been too timid in the use of the drug. I am always willing to learn, and if other observers should report similar survivals after equally heroic dosage of quinin, the reports would awaken my keenest interest. Whether or not Dr. Galbraith's cases were correctly diagnosticated, the fact that the patients could take so much quinin and recover is of high importance. If quinin aids chemically to neutralize the pneumo-toxin, either by direct or by indirect (so to speak, complemental or amboceptal, or similar) action, or if it has an agglutinating or bacteriolytic action directly or indirectly, we could understand both the effect of, and the necessity for, large doses. I should like to see experimental work done in the pathologic laboratory, both as to antitoxic and antimicrobic effects, not only with quinin, but with veratrum viride and with digitalis. I am convinced that the proved value of veratrum in pneumonia is not in its action on the heart and the vessels, but that it is in some way connected with the establishment of active or passive immunity; and digitalis, said to be useful in very large doses, may have some similar effect. It may be indirect, as in the stimulation of chemico-physiologic reactions, above and beyond its usual *functional manifestations*; or it may be a direct chemical action on toxin or cocci. Only experiment can determine this, and I hope that well-planned experiments will be made (1) on the neutralization of pneumotoxin *in vitro* and in animals by the drugs named and by others; (2) on the antipneumococcic effect of the drugs; (3) on the possibility of complement or amboceptor being substituted by the drug in part or in whole; (4) on the stimulation of, or interference with, immunity-chemistry by the drugs, through their action on blood cells, tissue cells, blood-plasma or bacteria. Meanwhile, Dr. Galbraith's report is worthy of serious thought.

Solomon Solis-Cohen.

Why Patent Medicines Are Dangerous.

Stanberry, Mo., Feb. 24, 1905.

To the Editor:—I have just read the page in the *Ladies' Home Journal* on "Why Patent Medicines are Dangerous,"[1] and I believe the author has struck the key-note to the remedy, which is publicity.

It is not possible for all physicians properly to analyze the contents of these nostrums, but every medical college of standing in the country is equipped for analytical work and could well afford to analyze samples without charge. If this was done the physicians of the country could be depended on to publish the known formulæ, and I verily believe it would not be long before the patent-medicine curse would be a thing of the past.

I trust this question may be agitated, and I believe the remedy is now within our reach. E. T. Campbell.

[Comment.—As our correspondent says, Edward Bok asserts in the *Ladies' Home Journal* that the demand for patent medicines would cease if the mystery surrounding them could be ended by the exposure of their secret composition and by showing that there is nothing new or wonderful about them; on the contrary, that they are either inert and valueless, or that they contain patent or poisonous drugs which are dangerous. In this the distinguished editor of the *Ladies' Home Journal* is unquestionably correct; but when he proposes to do this by having these medicines analyzed he discloses his unfamiliarity with this part of the "patent" and proprietary medicine problem. The greater portions of these medicines are extracts of drugs, whose constituents usually are not well-defined chemical substances, but which belong to different classes of proximate principles, i. e., resins, glucosids, organic acids, neutral or bitter principles and, rarely, alkaloids. These principles are for the most part not well-defined, they do not give sharp chemical reactions, and are, therefore, exceedingly difficult to identify even by the most expert chemists. A few of the most important alkaloids, i. e., quinin, morphin and strychnin, are comparatively easily detected, but in the case of other alkaloids, such as those of the mydriatic group, detection, not to mention quantitative determination, is impracticable, except in the most skillful hands. Inorganic salts are, of course, easily determined, but these seldom occur in "patent" or proprietary medicines, or, if they do, they are associated with organic substances on which the complex character of the medicine depends.—The Editor.]

There Was No "Operation on the Wrong Patient."

New York City, March 3, 1905.

To the Editor:—The account you sent me and, indeed, all the various reports that have come to me in the form of clippings, from various parts of the country, are of the most sensational character and have no rational basis whatever. The incident on which they are apparently based is as follows: A day or two previous to my regular clinic day, after careful examination I designated two women for my operative clinic.

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[1] See abstract on p. 730, March 4, 1905.

They were both cases of retrodisplacement of the uterus, one a simple uncomplicated case, and the other complicated by a tumor of the right uterine appendages. About the character of this tumor there was some difference of opinion between my assistants and myself, they being very positive that it was a case of ectopic pregnancy while I had pronounced it hydrosalpinx. There was some eagerness in the discussion, and each side was anxious to demonstrate the accuracy of his diagnosis. The differential points had been pointed out to the class and diagnostic acumen was more or less publicly at stake. Accordingly I selected the tumor case as the first to be operated on, the other to come as second. It so happened, without my knowledge, that the second case came first before the class. After explaining that this was the case about which there had been a diversity of opinion regarding the character of the tumor, I made the incision through the abdominal wall. The patient was thrown up into the Trendelenburg posture and the retractors inserted with the expectation of displaying to the class the controversial tumor. I was so confident of revealing a tumor that its absence created no little sudden surprise and a bit of amusement at my expense. The explanation of the house surgeon, however, promptly set matters straight, and I proceeded to shorten the utero-sacral and round ligaments to relieve the simple displacement which was present. The same operation was to be done in both cases. This happened February 18. The patient made a most satisfactory convalescence, was discharged from the hospital March 1 and returned to her home. J. Riddle Goffe.

Council on Pharmacy and Chemistry.

Detroit, Mich., March 4, 1905.

To the Editor:—I have just read the matter regarding the Council on Pharmacy and Chemistry. This meets the request of the Michigan State Medical Society presented at the last session of the House of Delegates of the American Medical Association. The Board of Trustees has appointed a "clearing house for unknown medicinal products." The difference in name does not matter, the idea is identical.

I am sure that you have thus done much to promote organization of the profession. You have started an active effort to help it in some of its perplexities—a help which it will appreciate. Then you have made it possible to place the advertising pages of The Journal of the Association on a scientific basis—thus furnishing a standard for the new medical journals—and for all medical journals that are willing to be guided by intelligence. It is most gratifying to note that it has been possible to secure the best men in the United States to go on the council, men whose signatures will have the weight of honest experts, men who can be trusted both for their knowledge and for fair treatment. Further, I approve of having a laboratory in connection with The Journal with competent men working therein—to help separate the true from the false, the helpful from trash.

Medicine has fallen much in esteem because physicians have been so ignorant of what they prescribed. Now the national organization has decided to make it easy to escape the thralldom of such ignorance—hence medicine must rise again to its normal power. I congratulate you on the movement. Leartus Connor.

Failure to Secure Incorporation of the Association.

New York City, March 6, 1905.

To the Editor:—It will be of interest to the members of the American Medical Association to know that the efforts to secure satisfactory national incorporation of the American Medical Association by special act of Congress at the recent session were not successful. In the judiciary committee of the House the bill was amended so as to limit its effectiveness to the District of Columbia, thus withholding the permission, so much desired in this connection, of transacting business anywhere in the United States. In the judiciary committee of the Senate the phraseology of the bill was amended so as to permit the transaction of business anywhere in the United States. Owing to the shortness of the session, however, and to the demands of the important national matters that especially characterized the occasion, together with other conflicting vicissitudes, the bill as thus amended was not reported for final action.

A detailed report of the efforts of the committee and of the supporters of the measure will be submitted for the information of the Association at a later period.

Joseph D. Bryant,
Chairman of the Committee on National Incorporation.

Queries and Minor Notes.

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

PROGRESS IN THE CHEMISTRY OF ALBUMINS—A PROTEST AND A DEFENSE.

Charleston, Mo., Feb. 9, 1905.

To the Editor:—I have just now read your editorial in The Journal, Dec. 17, 1904. I have often said that "The Journal," "Our Journal," The Journal of the "A. M. A.," was the journal and that none other could compare with it. Now, just why you should write an editorial like the one entitled "Progress in the Chemistry of Albumins," is difficult to understand. What benefit could such an editorial confer? True, it shows research by you and by others, but where does the benefit come in? It reminds me of something like the following: A man reaches the Atlantic shore and picks up a pebble or grain of sand, and through this pebble or grain of sand he undertakes to analyze the continent. How long do you suppose it would take him to do it? The dabbler in albumin is quite as likely to analyze man as the pebble man is to finish his task. Could you not do greater justice to your readers by telling them what you know of man as a whole? Why dabble with the dirt under a man's toe-nails and forget that he needs food and raiment? You surely can do better than waste your time and that of your readers in such "fol-de-rol" as is contained in that editorial. Of course, such an editorial makes you appear wise and learned, etc., but does such knowledge do any one any good? Suppose a molecule does contain as many "outlandish"-named things as you say it does, does that make its function any more easily learned? Won't you please come down off of your high horse and write something that will aid in curing la grippe, pneumonia and other prevalent maladies? I would rather save the life of one good man or woman than to know all that has ever been written about molecules. Men, women and children are what we have to deal with. Tell us what to do for them when they are sick. If we can cure the man, his molecules will take care of themselves. Now, I trust you will take this "squib" kindly and not "roast" me, but tell just what impression it makes on you. W. P. Howle, M.D.

Answer.—We print our correspondent's letter in full, for we have no doubt that others of our readers may have had a similar feeling on first reading the article mentioned. We think, however, that our correspondent, and those who have felt similarly, when they consider the various functions and responsibilities of The Journal, will agree that such articles have their place. While it is true that the majority of the readers of The Journal are men engaged in the active practice of medicine, eager for medical information that can be applied directly to the treatment of sick men and women, it will be generally recognized by them, we think, that progress in practical therapeutics, in most instances, has to be preceded by an extension of scientific knowledge in the subjects fundamental to medicine. Indeed, the practitioner who does not keep in touch with the progress that is being made nowadays in chemistry, physics and biology, anatomy, physiology and pathology, will often have difficulty in utilizing the immediately practical benefits, through the application to practical work of the new facts of these sciences. The Journal, therefore, makes the effort to review from week to week the important additions which are being made, not only to practical medicine and surgery, but also to the sciences auxiliary thereto. Our correspondent will also feel more charitable toward articles, such as the one to which he refers, when he recalls that The Journal numbers among its readers a great variety of medical practitioners, among them many recent graduates with a modern training in physics and in chemistry, as well as practitioners who graduated many years ago before it was possible to acquire that knowledge of the fundamental sciences which is now regarded as desirable. The Journal, therefore, regards it as its duty to attempt to supply the mental needs of all classes of its readers. It can scarcely be expected that every article in its editorial columns will appeal to all its subscribers, but an effort is made to supply new information in so many lines that each reader can appropriate what is best suited to himself. We sympathize keenly with our correspondent's impatience at the slowness with which progress is made in medicine. Every medical man is anxious to get forward faster than we do. We should like to tell our readers how to cure every case of "la grippe, pneumonia and other prevalent maladies," and would certainly do so if we knew how; but medical investigators at present seem to be of the opinion that we shall get forward faster in the long run if we make careful, minute analyses of the processes that go on in the human body than if we give up such minute studies and attempt, from the outside, to study "man as a whole." It was through studies of a most abstruse character—researches which for a long time seemed incapable of yielding any practical beneficial results—that the cure for diphtheria by an antitoxin was gradually evolved. Who knows but that out of the complexity of albumin chemistry, with all the difficulties that it presents at present, there may be deduced before very long some practical application which will make us grateful that such studies have been pursued? Should this be the case, will not those of us who have followed, step by step, the advances in this field, be the better able intelligibly to profit by the practical good which such inquiries may yield?

LOCAL ANESTHESIA IN PERINEORRHAPHY.

WAVERLY, MO., Feb. 27, 1905.

To the Editor:—Can you inform me of the technic, the solutions and the worth of the operation of primary perineorrhaphy under local anesthesia? I do not find it mentioned in the textbooks, but I have noticed references in various articles on the use of B. eucain, cocain, etc., for this purpose. If the operation is worth serious consideration and is practical, it will prove quite a boon to country practicians who find help difficult to secure, and it will meet the natural objection of the patients to an anesthetic.

W. C. O.

ANSWER.—Barker of London has used B. eucain solutions for various major and minor operations. He uses the following solution:

Distilled water	℥iiiss	100	
B. eucain	grs. iii		2
Salt	grs. viii		8
Sol. adrenalin chlor. 1-1,000 m. x			65

He states, in an article in the *British Medical Journal,* abstracted in THE JOURNAL, January 21, page 251, that this amount of fluid, and even more if necessary, may be used in an ordinary case without bad results. In a perineorrhaphy immediately after labor, when the tissues are bruised, very little of the anesthetic should be necessary. He states that by the addition of adrenalin to the solution, anesthesia is produced more slowly, but is of longer duration, and that the adrenalin also produces an anemia of the part to be operated on. To render the skin and areolar tissue insensitive, a larger area must be infiltrated than is to be cut. The solution should be injected in the submucous and subcutaneous tissues. Unless the laceration is of the first degree, primary repair is apt to prove unsatisfactory to both patient and physician. Abstracts of articles on this subject have appeared in THE JOURNAL from time to time—Aug. 27, 1904, page 641, Jan. 7, 1905, page 78, Feb. 4, 1905, page 428—while they do not mention perineorrhaphy in particular, the technic and general principles will apply to that operation.

A LIVER INDICTMENT.

A correspondent sends us a card, on one side of which is the following:

> DR. —. —. ————————,
> DIPLOMATE OF
> Biochemistry, Osteopathy, Psychology, Veterinary
> Medicine, Surgery and Dentistry.
> At — — ——— Farm, Near ——— ———
> I Restore Health to Man and Beast.

On the reverse side:

> I can restore you to health from all your ailments of any nature, chronic or acute, without the use of poisonous medicines—but use only the substance from which the body is constructed. The germs, microbes, and so on, are neither the cause nor the result of the ailments, yet they are eternal life—God's own way of perpetuating health—and all the so-called diseases are but a breaking down of the cell-tissues of the body, due to a defective liver, causing indigestion, which I can restore to perfect health with the tissue cell-salt.
>
> CONSULTATION FREE.
> Write or call on me at — — ——Farm,
> Near ——— ———

LIFE CYCLE OF MOSQUITOES.

MEMPHIS, TENN., Feb. 20, 1905.

To the Editor:—How long do mosquitoes usually live, and how far have they been known to travel from their breeding place? I have noticed that mosquitoes were alive in this building all winter, and last week killed one in the act of "biting." I have also noticed, in the summer, that mosquitoes were conveyed by the cars from the suburbs to the business portion of this city.

ALFRED MOORE.

ANSWER.—The average life cycle of a mosquito is probably a short one. It has been estimated at about two weeks for the common species of culex; others may be longer lived, and the stegomyia has been kept in captivity over seventy days. A few probably hibernate through the winter in houses, etc. They do not fly far, but may be carried great distances by the wind, and are good travelers by public conveyance, railroad cars, etc. The larvæ are still more easily carried in bilge water, water-casks, etc., on vessels, and probably in this way some species have greatly enlarged their habitat.

Marriages.

H. JOHN STEWART, M.D., to Miss Ethel Weaver, both of Chicago, March 2.

JOSEPHINE M. WETMORE, M.D., and Raymond R. Rust, both of Grinnell, Iowa, March 1.

HOMER H. HEATH, M.D., Toledo, Ohio, to Miss Pamelia Pray of Waterville, Ohio, March 1.

ROBERT L. COX, M.D., to Mrs. Margaret Carter, both of Houston, Texas, February 22.

RUFUS J. TEAGUE, M.D., to Miss Margaret Long, both of Roxboro, N. C., February 23.

AUSTIN F. QUIRE, M.D., Lynnville, Iowa, to Miss Carrie Smith of Taintor, Iowa, February 19.

GEORGE F. COCKER, M.D., to Miss Florence Schulze, both of New Orleans, La., February 28.

JOSEPH WILLIAM SMADEL, M.D., to Miss Clara B. Green, both of Vincennes, Ind., February 27.

ABRAM HUGH MOSS, M.D., Lake Charles, La., to Miss Mabel Adelaide Trueblood of Whittier, Cal., March 1.

GUSTAV ADOLF KRAUSS, M.D., to Miss Louisa Edge, both of Jersey City, N. J., in New York City, February 12.

SAMUEL TAYLOR DARLING, M.D., to Miss Nanneril Quincy Adams Llewellyn, at New York City, February 18.

JOHN PATRICK MCGOWAN, M.D., New York City, to Miss Francis Matilda Condict of Jersey City, N. J., March 1.

ARTHUR BARTON CRANE, M.D., Washington, D. C., to Miss Mary Wallace Pollard, at Alexandria, Va., February 28.

OSCAR C. WEBB, M.D., Simmonsville, S. C., to Miss Annie Louise Huff of Cataula, Ga., at Augusta, Ga., February 27.

TRAVALO CHESTER COGGESHALL, M.D., Henry, Ill., to Miss Jessie McCann of Champaign, Ill., at Peoria, Ill., February 11.

Deaths.

WALTER S. CHRISTOPHER, M.D.

Dr. Walter S. Christopher, one of the best-known specialists on diseases of children in the middle West, died March 2 at his home in Chicago, after a lingering illness, from chronic myocarditis and chronic parenchymatous nephritis, aged 45.

He was born in Newport, Kentucky, in 1859, received his early education in the schools of Newport and of Cincinnati, and was graduated from the Medical College of Ohio, Cincinnati, in 1883. During the last year of his college life he was an interne in the Cincinnati Hospital. Even as a student he took great interest in diseases of children, and after his graduation served seven years as assistant in the children's clinic of his alma mater. In 1884 he also assumed the duties of demonstrator of chemistry, and continued in this relation for six years. In 1890 he was called to the chair of theory and practice of medicine in the University of Michigan, Ann Arbor, and a year later came to Chicago, where he became professor of diseases of children at the Chicago Policlinic. A year later he was made professor of diseases of children in the College of Physicians and Surgeons. He was appointed a member of the Chicago Board of Education in 1898, and his term of service was marked by great activity, especially in the direction of child study and the medical inspection of schools. Although his aggressiveness in this direction was criticized, he persevered in the advocacy of his idea, believing that the education of the people to the intelligent understanding of sanitation was one of the chief duties of the medical profession.

He was a persistent and excessive worker, and to his overwork and underrest is due in great measure the breakdown in health from which he was unable to recover. In June of last year he was taken ill with nephritis. Heart complications soon arose, and on March 2 he died suddenly at his home in Chicago.

He was a member of the American Medical Association, the Illinois State Medical Society, Chicago Medical Society, Chicago Academy of Medicine, Chicago Pediatric Society, Chicago Pathological Society, and Chicago Gynecological Society; sometime president of the American Pediatric Society, and an honorary member of the Cincinnati Academy of Medicine.

"The most striking trait of Dr. Christopher, according to those who knew him well," says the Chicago *Record-Herald*, "was his constant seeking for new methods. He had the spirit of an explorer, and where other men were content to follow beaten tracks, he struck out for *himself* by the shortest route to the desired object. His investigations were minute and exhaustive, and an 'infinite capacity for taking pains' would probably have been accepted by him as a correct definition of genius. Had he studied himself as carefully, as intensely, and as accurately as he studied his patients, he would have been spared many years of usefulness, it is said."

Thomas Terrill, M.D. College of Physicians and Surgeons in the City of New York, 1867, formerly surgeon of the Third Regiment, N. G. N. J., city physician of Elizabeth, N. J., coroner and physician of Union County; a member of the Union County Medical Society, died at Alexian Brothers' Hospital, Elizabeth, from cerebral hemorrhage, February 22, after an illness of several weeks, aged 59.

Napoleon B. Woolsey, M.D. Ensworth Medical College, St. Joseph, Mo., 1893, of Braymer, Mo., a member of the American Medical Association, Medical Association of Missouri, North Missouri Medical Association, and Caldwell County Medical Society, died recently, and was buried, February 26, from his home at Braymer.

Lot Green, M.D. Medical College of Indiana, Indianapolis, 1881, a member of the Rush County (Ind.) Medical Society, and Indiana State Medical Society, and secretary of the Rush County Board of Health, died at his home in Rushville, Ind., February 21, from cerebral hemorrhage, after an illness of five days, aged 57.

William Hendry, M.D. Medical Department of Western Reserve University, Cleveland, 1896, of Cleveland, captain and assistant surgeon, N. G. Ohio, was killed in a train wreck near Emsworth, Pa., March 3, while on his way, with his command, to attend the inauguration ceremonies at Washington.

Alvah R. Cummings, M.D. Dartmouth Medical School, Hanover, N. H., 1853, the oldest practitioner of New Hampshire, and the oldest member of the New Hampshire Medical Society, died at his home in Claremont, February 26, from cerebral hemorrhage, after an illness of four weeks, aged 78.

James E. Crisfield, M.D. College of Physicians and Surgeons in the City of New York, 1873, of Dansville, N. Y., some-time president of the Livingston County Medical Society, a trustee and president of the village board and postmaster of Dansville, died in Jacksonville, Fla., February 21, aged 53.

David Thompson, M.D. College of Physicians and Surgeons of Ontario, Toronto, 1888, formerly reeve of Cayuga, Ont, and later a member of the city council of Hamilton, Ont., died at his home in the latter city, February 19, after a long illness, aged 41.

Glen O. Hardamann, M.D. Medical Department of the University of Missouri, St. Louis, 1848, surgeon during the Civil War, died at his home in Gray Summit, Mo., January 14, from cerebral hemorrhage, after an illness of six weeks, aged 80.

Adolph Zipperlen, M.D. University of Tübingen, Germany, 1840, a surgeon of the One Hundred and Eighth Ohio Volunteer Infantry during the Civil War, died at his home in Cincinnati, February 28, after an illness of several weeks, aged 87.

Silas Burbank, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1864, president of the Kennebec County Medical Association in 1875, died suddenly in Mount Vernon, Maine, from heart disease, February 26, aged 65.

Henry M. Lanier, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1870, for many years city marshal of Columbus, Miss., died at his home in that city, February 19, from heart disease, after a short illness.

David Le Roy, M.D. Medical College of Ohio, Cincinnati, 1848, major and surgeon of the Ninety-first Illinois Volunteer Infantry during the Civil War, died at his home in Streator, Ill., February 27, from senile debility, aged 83.

George Lederman Hyslop, M.D. New York University, New York City, 1850, one of the founders of the Demilt Dispensary, died at his home in New York City, March 2, from heart disease, after an illness of four days, aged 79.

Hiram Wiggins, M.D. College of Physicians and Surgeons of the Western District of New York, Fairfield, 1838, one of the oldest physicians of Onondaga County, N. Y., died at his home in Elbridge, N. Y., February 20, aged 90.

John Porter Wetherell, M.D. Western Pennsylvania Medical College, Pittsburg, 1887, city physician of the eastern district of Allegheny, Pa., died at the home of his sister in Coytesville, N. J., February 19, after a long illness.

Rufus S. Morgan, M.D. Memphis Hospital Medical College, 1894, a member of the American Medical Association and one of the best-known physicians of Southwest Arkansas, died at his home in De Queen, February 22.

Walter T. McCoy, M.D. College of Physicians and Surgeons, Baltimore, 1885, of Partridge, Kan., was struck and instantly killed by a Rock Island train at a crossing three miles east of Partridge, February 28, aged 47.

Delaney P. Hicks, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1878, physician of Kaufman County, Texas, died at his home in Kaufman, February 26, from pneumonia, aged 53.

Addison M. Ferry, M.D. Marion-Sims College of Medicine, St. Louis, 1898, died at his home in Parkersburg, Iowa, February 26, from the effects of an overdose of medicine, after an illness of two days, aged 30.

Peregrine C. Jones, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1888, died at his home in Kansas City, Mo., February 28, from cerebral hemorrhage, after an illness of two days, aged 71.

J. R. Wooten, M.D. a member of the Barren County Medical Society, died at his home in Finney, Ky., January 10, from cancer of the stomach, after an illness of three months, aged about 60.

Edward P. Seeley, M.D. University of Nashville (Tenn.) Medical Department, 1869, died at his home near Bowling Green, Ky., February 6, from pneumonia, after a short illness, aged 56.

Thomas W. Barrett, M.D. College of Physicians and Surgeons in the City of New York, 1897, died at his home in Portland, Ore., February 19, from typhoid fever complicated with pneumonia, aged 32.

James Harmon Gentry, M.D. Missouri Medical College, St. Louis, 1884, died at Mesa, Ariz., January 20, from progressive pernicious anemia, after an illness of about two years, aged 50.

David H. Scott, M.D. Cleveland Medical College, 1855, for many years professor of surgery in that institution, died at his home, Fruit Hill, Chillicothe, Ohio, February 25, aged 76.

Edith Barker, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1897, for five years pathologist to the State Hospital for the Insane, Norristown, Pa., died recently.

Isaac C. Edson, M.D. Albany (N. Y.) Medical College, 1867, a former member of the legislature from Broome County, N. Y., died at his home in Windsor, N. Y., February 22, aged 81.

Thomas J. Marlin, M.D. Jefferson Medical College, Philadelphia, 1873, died at his home in Tarkio, Mo., February 18, from pneumonia, after an illness of three days, aged 61.

Elijah Luther Van Cleave, M.D. Rush Medical College, Chicago, 1895, died at his home in Rockville, Ind., February 18, from pneumonia, after an illness of nine days, aged 49.

Edward A. Hering, M.D. University of Maryland School of Medicine, Baltimore, 1855, died at his home in Harrisonburg, Va., February 25, from cerebral hemorrhage, aged 78.

Edward F. Brodie, M.D. University of Nashville Medical Department, 1872, died at his home, Dripping Springs, in the Olmstead District, Logan County, Ky., February 21.

P. Thomas Markey, M.D. Albany (N. Y.) Medical College, 1893, died at his home in Schenectady, N. Y., February 22, from gastritis, after an illness of one week, aged 33.

Samuel Watson Truitt, M.D. University of the State of Missouri Medical School, Columbia, 1895, died at his home in San Francisco, February 16, from influenza; aged 35.

Jonathan R. Johnson, M.D. McGill University Medical Department, Montreal, 1880, died at his home in Spring Valley, Minn., from erysipelas, February 27, aged 49.

John F. Lesh, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1876, died at his home in Seneca, Kan., February 23, from heart disease.

Cordelia O. Hickox, M.D. Ohio, 1873, pioneer woman physician of Iowa, died at her home in Cedar Rapids, February 25, after an illness of one week, aged 77.

Robert L. Price, M.D. University College of Medicine, Richmond, Va., 1900, died at his home in Boone's Mill, Va., February 22, from typhoid fever, aged 25.

John P. Richardson, M.D. Medical College of Ohio, Cincinnati, 1866, of Sabetha, Kans., committed suicide by hanging himself in his barn, February 26.

William Moore, M.D. Gross Medical College, Denver, Colo., 1892, died in Cripple Creek, Colo., from pneumonia, February 23, after a short illness, aged 50.

George R. Metcalf, M.D. College of Physicians and Surgeons in the City of New York, 1874, of St. Paul, Minn., died in Orvieto, Italy, March 1, aged 57.

J. Thomas Sim, M.D. Jefferson Medical College, Philadelphia, 1860, died at his home in Libertytown, Md., February 28, from disease of the liver, aged 66.

Johann Jacob Eisenhut, M.D., for many years a practitioner of Central City, Colo., died in St. Anthony's Hospital, Denver, Dec. 28, 1904, aged 104.

Joseph T. Prewitt, M.D. 1855, died at his home in Elgin, Texas, February 8, from cerebral hemorrhage, after an illness of one month, aged 83.

Chalmers A. Parker, M.D. Kentucky School of Medicine, Louisville, 1883, died at his home in Fort Worth, Texas, February 23, aged 47.

Jacob Simmons, M.D. Cincinnati, died at his home in O'Neill, Neb., January 27, from tabes dorsalis, after an illness of four years, aged 66.

George D. Boon, M.D. University of Michigan Department of Medicine and Surgery, 1870, died at his home in Chetopa, Kan., February 20.

Frank M. Pitts, M.D. Jefferson Medical College, Philadelphia, 1881, formerly of Hubbard City, Texas, died at Highland, Cal., Oct. 2, 1904.

Rufus K. Langson, M.D. Illinois, 1883, died in his office at Chadron, Neb., February 26, from a self-inflicted gunshot wound of the head.

J. Austin Miller, M.D. Kentucky School of Medicine, Louisville, 1885, of Oakland, Cal., died at Houston, Texas, February 24, aged 47.

Conrad Bardill, M.D. Humboldt Medical College, St. Louis, died recently at Monrovia, Cal., after an illness of six months, aged 68.

Bernard Eugene Bigler, M.D. Pennsylvania, 1899, of Philadelphia, died in Colorado, from tuberculosis, February 20, aged 26.

Michael W. Peters, M.D. Detroit College of Medicine, 1893, died in Owosso, Mich., February 25, from an overdose of cocain, aged 35.

Samuel Morrill, M.D. Harvard University Medical School, Boston, 1852, died at his home near Farmville, N. C., February 25.

James Alva Dingman, M.D. Cincinnati, 1871, died recently at his home in Spring Valley, N. Y., and was buried, February 27.

Charles W. Crowell, M.D. Chattanooga (Tenn.) Medical College, 1892, died recently at his home in Marshall, Texas.

Daniel Caulkins, M.D. Cleveland Medical College, 1863, died at his home in Toledo, Ohio, February 20, aged 79.

Frederick Tischer, M.D. University of Leipzig, Germany, 1882, of San Francisco, died recently at Santa Cruz, Cal.

Charles C. Taylor, M.D. Ohio, 1890, died at his home in Leetonia, Ohio, February 27, from tuberculosis.

Frederick A. Schell, M.D. Cincinnati, 1856, died at his home in Spencer, Ind., February 17, aged 79.

Joseph H. Snyder, M.D. Syracuse (N. Y.) 1854, died at his home in Cameron, Mo., February 23.

Deaths Abroad.

A. A. G. Guye, M.D., professor of otology at Amsterdam, died there January 15, aged 65. It was by his efforts and advice that the government of Holland introduced the examination of school children for the purpose of detecting the presence of adenoid vegetations. Among his numerous publications were some on the functional brain troubles due to mouth breathing, for which he coined the term "aprosexia." During the last year or so he was president of the society which publishes *Janus*, the international archives for the history of medicine and medical geography.

J. Scriba, M.D., professor of surgery at Tokio from 1879 to 1902, and chief of one of the hospitals until his death, died January 3, aged 56. He was born in Germany and was trained under Czerny; his wife was a Japanese. He published a number of works on surgery, anthropology and botany.

G. Ludwig, M.D., at the head of the German Hospital in London for many years, died at Venice in January. He retired from practice about ten years ago, and has won a name as a connoisseur and collector in art and antiquities.

A. Bobrow, M.D., professor of surgery at Moscow, and author of several popular text-books.

J. A. Serrano, M.D., professor of anatomy at Madrid.

Book Notices.

A TREATISE ON DISEASES OF THE NERVOUS SYSTEM. By L. Harrison Mettler, A.M., M.D., Associate Professor of Neurology, College of Medicine of the University of Illinois. Complete in One Volume; Profusely Illustrated; Two Color Plates; Full Indexes. Cloth. Pp. 1000. Price, $5.00. Chicago: Cleveland Press. 1905.

The author has attempted to classify diseases of the nervous system in accordance with the neuron doctrine. He states that in his opinion the unity of the nervous apparatus and its functions is not taught as thoroughly as it should be. Among other things he has endeavored to make plain from the standpoint of modern psychology, many of the psycho-physical manifestations of the nervous system. The following is his classification: 1. Neuronic diseases. The functional neuronic diseases (neuroses and psycho-neuroses): *a.* Those of the cerebrospinal system. *b.* Those of the sympathetic system. The organic neuronic diseases are subdivided into those of the afferent system, those of the efferent system, those of the afferent and efferent systems. 2. Non-neuronic diseases (interstitial and vascular troubles affecting the neurons secondarily): *a.* Of the spinal cord and its membranes. *b.* Of the peripheral nerves. *c.* Of the brain and its membranes. 3. General intoxications with special nervous symptoms. Although this classification is altogether in harmony with the author's plan and is a fairly good one for working purposes, its superiority to the old arrangement of diseases of the brain, cord and peripheral nerves is questionable. For the last word has not yet been spoken on the neuron doctrine. Just at this moment the very foundation of the neuron theory is being so thoroughly shaken that even its closest adherents are compelled to make repairs here and there. The volume is rather bulky for frequent use, but this would be no fault were it unavoidable; but in this case considerable condensation would be of value. There are several much smaller hand-books on nervous diseases in the English language that contain quite as much information as this one. It is certainly much easier to be verbose than to be concise, especially when an author writes so eloquently. Still, a treatise on nervous diseases should not be a rhetorical effort anent the neuron theory, however readable such a style may make the work. On opening the book at random we are inclined to question for whom it was written; the author tells us that it is intended for the practitioner and for the student, but it reads rather like a popular novel and seems to be addressed to the general reader. Sometimes even there is a sacrifice of accuracy for a mere figure of speech. With some unimportant exceptions the pathology is correct and safe and the pathologic anatomy is well illustrated by plates selected from the best works. The descriptions of symptoms and of the general features of the various diseases are sufficiently full and generally clear. Diagnosis, especially differential diagnosis, receives attention sufficiently adequate for guidance in practice. The chapter on therapeutics is quite complete.

GUIDE TO THE EXAMINATION OF THE THROAT, NOSE AND EAR, for Senior Students and Junior Practitioners. By William Lamb, M.D., C.M. Edin., M.R.C.P. Lond., Honorary Surgeon, Birmingham Ear and Throat Hospital. Cloth. Pp. 152. Price, $1.75. New York: Wm. Wood & Co. 1905.

This is a small compact volume of about 150 pages. It contains a number of illustrations, several of which are drawn from original dissections by the author. It is well written, states facts only, and it may be truly said that it is what it purports to be—A Guide to the Examination of the Throat, Nose and Ear. It is designed primarily for the student and for the general practitioner, but the specialist also undoubtedly will find much of value in it.

Miscellany.

Infants in Sweat Shops.—About the limit in the atrocities of sweat shop labor is the case of a female infant, eighteen months of age, who, according to the newspapers, was discovered at sweat shop work in a tenement house. The baby rolled balls in paste for the mother to work with.

Influence of Pregnancy on the Heart.—According to Pouliot the normal heart is not affected during pregnancy; it does not become hypertrophied, its dilatation is rare and arterial hypertension does not appear until labor. With the augmentation of blood in the system there is an increase of circulatory capacity. He says in the *Arch. gén. de Méd.* that the healthy heart is perfectly capable of meeting normal conditions during pregnancy and even the excessive strain of normal labor. When, however, organic lesions exist the condition is otherwise.

One Value of Organization.—Nine months ago the physicians of our county organized a society, writes E. L. to the *Alkaloidal Clinic*, January. It has made us better physicians and it has shown us how to unite on matters of finance. Not that we are charging too high, but that we have stopped cutting prices. In settlement with a patron yesterday this understanding saved me almost $40, and the patron was perfectly satisfied. All he wanted to know was that I was not charging more than the other physicians, and when he learned that we all charged the same he was satisfied.

Contests of Endurance Prohibited.—Recently an ordinance was passed by the New York City Board of Aldermen prohibiting contests of endurance in the future. This action is taken to put a stop to six-day contests in bicycle and walking races. which of late years have been so frequent. The new law limits such contests to a period not exceeding three hours. This is one of the most sensible ordinances we ever heard of being passed by a board of aldermen, says the editor of the *Medical Age*, February 10. Other cities would do well to pass similar ordinances.

Italian Production of Olive Oil.—Italy produced 86,119,700 gallons of olive oil during the year 1903-4, or 37,248,000 gallons more than in 1902-3, 1,585,200 gallons more than in 1901-2, according to *Moniteur Official du Commerce*. Much of this year's olive crop was being abandoned because of its abundance. It hardly paid to pick the fruit in some parts; beside, the drought from July to October had ravaged Italy and seriously affected the quality. The fruit, though abundant, is small and poor, hence of little value for making oil. The cultivation of the olive is increasing constantly though slowly. The area devoted to olives was 2,690,963 acres in 1903.

A Nitrogen Gas Well.—Haworth and McFarland, at a meeting of the Geological Society of America, Philadelphia, Dec. 30, 1904, gave an account of a well in Kansas which yielded gas which refused to burn. On examination this gas proved to be over 71 per cent. nitrogen. They stated that they were unable to advance any theories as to how so large a volume of nitrogen became entombed in the ground. *Science*, commenting on this, remarks that under the view that the earth's atmosphere and hydrosphere represent volatile matter forced out from the interior of the shrinking globe, this phenomenon is simple and natural. It is one of many indications that the interior supply of gases is not exhausted and that the atmosphere is still growing.

Dr. Osler as a Joker.—When Dr. Osler issued his dictum on the uselessness of the average man who has passed his fortieth and sixtieth birthday, says the *Nebraska State Journal*, it must have warmed his soul to see how vigorously the solemn editors took the bait and made off with it. Dr. Osler, let it be known, is an incorrigible wag. One of his previous exploits was the publication that 33 1/3 per cent. of the women students in medicine in Johns Hopkins University had married into the faculty. After the sage editors had swallowed the hook, bob and sinker, he unsmilingly came forward with the further information that there were three of these students in the university, and one of them had married a professor!

Treatment of Pseudarthrosis by Subcutaneous Injections of Blood.—Bier of Bonn, in *Medicinische Klinik*, I, No. 1, reports that subcutaneous injection of blood had a marked action in promoting bony union in three cases of pseudarthrosis consecutive to fracture. He is convinced that the presence of blood between the ends of a fractured bone aids in promoting bony union by favoring the production of callus. Union is much slower and less complete when there is no hemorrhage after a fracture. He injected from 15 to 25 c.c. of defibrinated blood in the cases reported. They came under observation about fourteen months after the fracture. A callus formed in less than a month and consolidation was soon complete.

A Biologic Station in Greenland.—A Danish botanist has proposed to his government the appropriation of funds to establish a biologic station on the southern coast of Disko Island, North Greenland. The estimated cost of the undertaking, according to *Science*, will probably be about $9,400, which will include the erection of buildings, purchase of motor boats, sledges, tents and other material for short expeditions, instruments, books, etc. The running expenses, including salaries, are estimated at $2,960. The geographical position of Greenland, and the similarity of conditions with those of the northernmost part of this continent must necessarily appeal to Americans and, until a permanent biologic station can be established in a similar locality in Alaska, those interested in Arctic research will find the proposed Danish institution a place of interest.

New Medical Journals.—Three new medical publications on our desk have not yet been mentioned. *Medical Notes and Queries*, published in Lancaster, Pa., and edited by Dr. Henry W. Cattell of Philadelphia, is devoted to small items chiefly of interest to laboratory workers and to practitioners who use the modern methods of precision in diagnosis, etc. The intention of the editor is to make a specialty of correspondence and of queries on various subjects which are not fully covered by the writer's text-books. The *California Medical and Surgical Reporter*, edited by Dr. Charles P. Wagar of Los Angeles, once of Toledo, Ohio, is a promising monthly medical journal with general contents, including articles, society reports, editorials and news. From Savannah Ga., comes another new paper, the *Georgia Practician*. Martin Cooley is the editor, and his selection of matter for the first issue and his manly introduction give promise that the paper will be valuable to the Georgia practician.

Needless Remedies.—It is time the physicians of this country called a halt. Month after month we are literally deluged with a multitudinous number of new and needless remedies—remedies that only find their need in the financial profit of the manufacturer. Were it not for the help of thoughtless physicians this would have long ago been brought to a stop. Not that we decry the work of the scientific chemist in his search for new methods and new drugs, for we all feel his need and acknowledge our depth of gratitude for his labors in the past, but this exploitation of various combinations of well-known drugs, and of those which have not received the seal of scientific approval ought to stop. It is only the ready sale procured that encourages this industry. If physicians would study carefully the National Formulary there would be less need of combinations of medicines put up by "manufacturing" chemists. Any good druggist can put up a National Formulary prescription as well as any one else. Show us any preparation that has a large sale on account of its supposed good properties and we will show you its analogue in the National Formulary, which will have the identical effect.—*Medical Recorder.*

Useless Knowledge.—The president of a British engineering society recently made the following statement: "No knowledge is worth obtaining for its own or any other sake, unless it is or will be useful to men." The assertion is very attractive in appearance, and it has been hailed with much enthusiasm by a number of journals devoted to applied science. Apparently it is supposed to crush for all time the lovers of pure science as distinguished from the "bread-and-butter" variety. But we have been unable to discover anything either new or remarkable in the statement. But who is to decide whether a particular bit of information is likely to be useful or not? Speaking for mankind in general, there is no assertion which can be made with greater safety than that there is no such thing as useless knowledge. Nearly all great discoveries have been ridiculed as useless at some time during the world's history, and he must be a bold man who dares assert that even the refinements of mathematics and the humblest of the innumerable synthetic organic compounds will never be of use to humanity. For all we know, the German professor who proposed to devote a lifetime to a study of the muscles in a beetle's leg may yet turn out to be a benefactor of humanity. The individual should, however, examine the statement from another angle. Humanity can afford to wait for history to prove the value of a discovery; not so the indivisible fraction of mankind who has not time enough for that. Unless he is willing to labor unselfishly for the good of future generations he must select such knowledge as will prove useful to him. There are those who claim that no information can be useless even to the individual, but that assertion we may venture to question. For instance, of what use is a knowledge of esoteric philosophy to the business man who can not find time to keep up a passing acquaintance with himself?—*Pharmaceutical Era*, February 2.

State Boards of Registration.

COMING EXAMINATIONS.

Connecticut Medical Examining Board, City Hall, New Haven, March 14-15. Secretary, Charles A. Tuttle, M.D., New Haven.

Massachusetts Board of Registration in Medicine, State House, Boston, March 14-15. Secretary, Edwin B. Harvey, M.D., Boston.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

South Carolina State Board of Medical Examiners, Columbia, April 24. Secretary, W. M. Lester, M.D., Columbia.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Vermont January Report.—Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, Feb. 7-9, 1905. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of applicants examined was 2, both passed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Lavall University	(1904)	63.6
University of Vermont	(1904)	74

Association News.

NEW MEMBERS.

New members for the month of February:

ALABAMA.

Gavin, G. E., Mobile.
Jordan, Wm. M., Birmingham.
Owen, C. N., Mobile.
Scales, W. W., Mobile.
Stevenson, F. C., Montgomery.

ARIZONA.

Kaull, L. P., Jerome.

ARKANSAS.

Bradley, Wm. Thos., Monroe.
Lewis, John W., Keo.
Robertson, J. A., Hot Springs.

CALIFORNIA.

Aiken, Geo. H., Fresno.
Bock, Charles, Los Angeles.
Cotter, P. Gregory, Los Angeles.
Carson, J. K., Los Angeles.
Conrad, D. A., Santa Barbara.
Clark, Wm. S., San Francisco.
Dillon, E. T., Los Angeles.
Dowdall, R. J., Crescent City.
Grissim, J. D., San Jose.
Hagadorn, Mary E., Pasadena.
Kelsey, J. Edson, Berkeley.
Kirkpatrick, J. L., Los Angeles.
Lehmann, G. W., San Francisco.
Lamkin, Burt B., Fresno.
Lendrum, B. A., Fort Bragg.
Mallery, J. H., Eureka.
McNaughton, Jas. A., Blue Lake.
Murphy, C. W., Los Angeles.
McArthur, R., Los Angeles.
McNeil, H. C., Los Angeles.
Mills, H. W., San Bernardino.
Quint, S. J., Los Angeles.
Schmitz, John, Los Angeles.
Seymour, J. H., San Francisco.
Tate, C. Francis, Los Angeles.

COLORADO.

Davis, A. L., Durango.
Neubert, Christian L., Denver.
Reckly, Mary D., Fort Collins.

CONNECTICUT.

Adams, H. E., Hartford.
Chatfield, R. B., Granby.

DISTRICT OF COLUMBIA.

Clifford, Addison B., Washington.

FLORIDA.

Dewberry, W. C., Pensacola.
DuBois, H. K., Port Orange.
Esch, J. P., Goodall.
Gwynn, G. H., Tallahassee.
Mantey, Karl, Eustis.
Morris, S. A., Jacksonville.
Simpson, H. L., Pensacola.
Thomason, F. E., Live Oak.

GEORGIA.

Boland, F. K., Atlanta.
Roberts, J. B., Atlanta.

ILLINOIS.

Brooks, T. C., Chicago.
Cohn, Eugene, St. Jacob.
Friduss, Samuel L., Chicago.
Hillebrand, C., Freeport.
Hellebrandt, Frank J., Chicago.
Keogh, Chester H., Chicago.
Poland, B. I., Danville.
Peterson, Wm. A., Chicago.
Roach, D. C., Burlington.
Scheel, A. M., Belleville.
Shumway, E. B., Chicago.
Ward, Todd P., Mt. Vernon.

INDIANA.

Cunningham, S. R., Indianapolis.
Coleman, J. W., Petersburg.
Kamman, Herman H., Columbus.
Markley, Stephen C., Richmond.
Weis, Wm. D., Hammond.
Yoder, Albert C., Goshen.

INDIAN TERRITORY.

James. Ed. D., Haileyville.
Shelton, J. W., Wynnewood.

IOWA.

Barkalow, D. G., Ellsworth.
Harkness, Gordon F., Davenport.

KANSAS.

Anderson, Andrew G., Salina.
Bartlett, W. E., Belle Plaine.
Brooks, Stanley H., Mound City.
Klepinger, Jno. C., Herington.
Nordstrom, Louis O., Assaria.
Peak, Frank, Pratt.

KENTUCKY.

Crenshaw, J. W., Cadiz.
Howell, J. D., Vine Grove.
Parker, Walter C., Versailles.
Quinn, William A., Henderson.
Stuart, Joseph M., Owensboro.
Ward, R. W., Chilton.

MAINE.

Conneen, Thos. F., Portland.
Emery, Harry S., Portland.
Hebb, Angus G., Bridgton.

MARYLAND.

Fisher, Chas. T., Princess Anne.
Robinson, I. P., Baltimore.
Ulman, S. Jay, Baltimore.
Wainwright, Chas. W., Princess Anne.

MASSACHUSETTS.

Cowles, Wm. N., Ayer.
Feeley, Chas. P., Cambridge.
Grover, Arthur L., Hyde Park.
Hutchinson, C. M., Waltham.
Ilsley, Fred R., Medford.
Jackson, James M., Boston.
Mayhew, O. S., Vineyard Haven.
Pillsbury, Boyden H., Lowell.

MICHIGAN.

Annis, L. C., Cedar Springs.
Cavanagh, D. G., Muskegon.
Foster, Horatio L., Reed City.
Fleischhaur, D. S., Reed City.
Meade, C. H., Olivet.

Potter, Thos. H., Detroit.
Rockwell, A. H., Kalamazoo.
Rowland, Russell S., Detroit.
Sanford, T. M., DeWitt.
Simpson, C. E., Pontiac.
Wood, Richard H., Montrose.
Yerkes, Louis N., Garden.

MINNESOTA.

Beck, Walter M., Hanley Falls.
Hixson, R. B., Cambridge.
Olson, Alof A., Minneapolis.

MISSISSIPPI.

McInnis, Jno. M., Brooklyn.
Rehfeldt, F. E., Vaiden.
Thompson, Chas. C., Columbia.

MISSOURI.

Chesmore, Harry P., Princeton.
Cobb, Chas. D., St. Louis.
Evans, Samuel M., Bloomfield.
Mills, H. P., Sheridan.
Prinz, Hermann, St. Louis.
Ross, Lonidas C., Winona.
Rininger, W., St. Louis.

MONTANA.

Owings, J. Hood, Deer Lodge.
Sutherland, E. L., Sheridan.
Tucker, W. Q., Crow Agency.

NEBRASKA.

Fox, Chas. H., Clarks.
Pennington, Jas. L., Republican City.
Park, B. F., Omaha.
Truelsen, Thomas, Omaha.

NEW HAMPSHIRE.

Bates, Jno. Harold, E. Rochester.
Cutler, Chas. H., Peterboro.
Horne, B. Frank, Conway.
Miller, Elmer M., Woodeville.
Pender, Geo. Edw., Portsmouth.
Provost, A. M. J., Berlin.
Tolles, C. W., Claremont.
Woodman, Milton S., West Lebanon.

NEW JERSEY.

Piskorski, Abdon, V., Jersey City.

NEW MEXICO.

Shuman, J. R., Aztec.

NEW YORK.

Bischof, L. F., New York City.
Nathan, P. W., New York City.
O'Neil, D. E., New York City.
Stubbs, Roland H., Waterford.

NORTH DAKOTA.

Glaspel, G. W., Grafton.
Williamson, Geo. M., Ardoch.

OHIO.

Barricelli, G., Cleveland.
Bown, S. J., Claiborne.
Ford, Clyde E., Cleveland.
Forsythe, A. M., Maynard.
Heck, Stanton, Salem.
McDonald, D. M., Akron.
McGonigle, M. B., Ashley.
Oxley, Frances Marion, Cincinnati.
Rayl, Katherine J., Gallion.
Talmage, J. B., Columbia.
Williams, Martha R., Cincinnati.

OKLAHOMA TER.

Farber, Julius E., Cordell.

OREGON.

Campbell, Wm. M., Portland.
Coffman, Walter R., Portland.
Day, Floyd M., Eugene.
House, William, Mt. Tabor.
Robnett, J. H., Salem.

PENNSYLVANIA.

Bryner, J. H., Ickesburg.
Boon, Wm. T., Philadelphia.
Best, Margaret B., Meadville.
Binkley, G. K., Orwigsburg.
Evans, T. H., Philadelphia.
Fretz, John E., Easton.
Good, Albert Park, Philadelphia.
Hollister, F. P., Scranton.
Irwin, William, Philadelphia.
Jeffers, Benj. B., Steelton.
Jackson, J. D., Connellsville.
Kutz, W. L., Weissport.
Keene, Chas. E. L., Harrisburg.
Kind, Geo. P., Lancaster.
Knight, T. Howard, Philadelphia.
Lammer, F. J., Philadelphia.
Lee, W. Estell, Philadelphia.
Lowenburg, Harry, Philadelphia.
Longcope, W. T., Philadelphia.
Lilley, W. M., Brownsville.
Marcellus, M. B., Philadelphia.
Macfarland, F. H., Philadelphia.
McClary, Sam'l, Philadelphia.
Nickel, J. Edw., Glen Moore.
Peters, J. M., Steelton.
Rupp, Frederick A., Lewistown.
Rovno, Philip, Philadelphia.
Richards, F. H., Philadelphia.
Riechard, L. N., Brownsville.
Stover, Isaac F., Philadelphia.
Shearer, Alfred Luther, Duncannon.
Smith, W. Clive, Wilkesbarre.
Ulman, Jos. F., Philadelphia.
Weirich, Collin R., Washington.
Yeager, F. N., Philadelphia.

RHODE ISLAND.

Darrah, R. F., Newport.
Ham, Albert E., Providence.
McKenna, John B., East Providence.

SOUTH DAKOTA.

Countryman, Geo. E., Aberdeen.
Duguill, J. O., Springfield.
Haustein, H. H., Lead.

TENNESSEE.

Happer, J. D., Jackson, Tenn.

TEXAS.

Alexander, J. M., Abilene.
Crosthwait, W. L., Holland.
Evans, A. H., Eagle Pass.
Elliott, B. S., Augusta.
Glass, John Wiley, Cass.
Gallagher, F. W., El Paso.
Poindexter, John G., Bridgeport.
Smith, W. J. S., Cash.
Wright, Edward F., Royse City.
West, Warren F., Waxahachie.

VERMONT.

Aldrich, W. J., St. Johnsbury.
Platt, Mary Mixer, Shoreham.

VIRGINIA.

Michaux, S. N., Richmond.
Purdy, James J., Sulphur Mines.

WASHINGTON.

Purman, Rose Mildred, Seattle.
Wiltsie, S. F., Seattle.

WEST VIRGINIA.

Sampson, W. H., Mount Hope.

WISCONSIN.

Clementson, J. A., Lancaster.
Ellsworth, H. E., Appleton.
Hutchins, Sylvester E., Whitehall.
Hinckley, H. G., Merrill.
Kersten, A. M., DePere.
Moulding, F. C., Watertown.
O'Brien, J. M., Oregon.
Smith, E. J., Neenah.
Schultz, F. W., Merrill.
Taugher, J. P., Milwaukee.
Taugher, A. J., Milwaukee.

WYOMING.

Finney, H. S., Rawlins.
Strader, G. L., Cheyenne.
Wayson, James T., Honolulu.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 4, 1905:

Howell, Park, asst.-surgeon, relieved from duty at Fort McPherson, Ga., and ordered to Manila, P. I., with Sixteenth Infantry, for duty in Philippine Division.

Barney, Charles N., and Gosman, Geo. H. R., asst.-surgeons, the former relieved from duty at Fort Schuyler, N. Y., and the latter at Fort Caswell, N. C., February 23, and ordered to Manila, P. I., for duty in Philippine Division, on transport to sail from San Francisco about March 31.

Field, Peter C., asst.-surgeon, relieved from duty at Fort Robinson, Neb., and ordered to Manila, P. I., for duty in Philippine Division.

Farr, Charles W., asst.-surgeon, relieved from duty at Fort Mason, Cal., and as attending surgeon and examiner of recruits, San Francisco, and assigned to duty as transport surgeon on the *Thomas*, and on arrival at Manila, to report for duty in Philippine Division.

Murtagh, John A., asst.-surgeon, relieved from duty on transport *Thomas* and ordered to Fort Mason, Cal., for duty and as attending surgeon and examiner of recruits, San Francisco.

Craig, Charles F., asst.-surgeon, relieved from duty at U. S. Army General Hospital, Presidio of San Francisco, and ordered to Manila, P. I., for duty in Philippine Division.

Smith, Herbert M., asst.-surgeon, relieved from duty as transport surgeon on the *Sherman* and ordered to the U. S. Army General Hospital, Presidio of San Francisco, for duty.

DeLoffre, Saml. M., asst.-surgeon, ordered to accompany Second Lieutenant Lesher, Second Cavalry, from Fort Assinniboine, Mont., to Government Hospital for Insane, Washington, D. C.

Gray, Wm. W., surgeon, relieved from duty at Fort McPherson, Ga., and assignment to duty in Philippine Division, revoked.

Straub, Paul F., asst.-surgeon, reports arrival at Fort Myer, Va., with squadron Ninth Cavalry. Left Fort Leavenworth, Kan. February 25.

Ekwurzel, Geo. M., asst.-surgeon, reports departure from West Point, N. Y., with detachment of cavalry to Washington, D. C.

Long, Charles J., dental surgeon, arrived February 17 at Fort Assinniboine, Mont., for temporary duty.

Wing, Franklin F., dental surgeon, granted leave of absence for fourteen days.

Lauderdale, Clarence E., dental surgeon, ordered from Fort Ringgold, Texas, to Fort Bliss, Texas, for temporary duty.

Coffey, Albion McD., contract surgeon, ordered from Fort Worden, Wash., to Fort Lawton, Wash., for temporary duty.

Kellogg, Preston S., contract surgeon, returned February 26 to his proper station, Fort Robinson, Neb., from temporary duty at Fort Crook, Neb.

Thorp, Charles W., contract surgeon, ordered from Fort Ethan Allen, Vt., *to Fort Adams*, R. I., *for temporary duty.*

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 3, 1905:

Taylor, E. C., asst.-surgeon, detached from the *Bancroft* and ordered to the *Colorado.*

Huntington, W. H., pharmacist, retired, ordered to the Naval Training Station, Newport, R. I.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 1, 1905:

Glennan, A. H., asst.-surgeon general, granted leave of absence for fifteen days from March 6.

Stoner, G. W., surgeon, to proceed to Boston, Mass., for special temporary duty.

Banks, C. E., surgeon, relieved from duty at Chicago and directed to proceed to Key West, Fla., and assume command of the service, relieving P. A. Surgeon C. H. Gardner.

Gardner, C. H., P. A. surgeon, on being relieved from duty at Key West, Fla., by Surgeon C. E. Banks, to proceed to Galveston, Texas, and assume command of the service.

Heiser, V. G., P. A. surgeon, to report to the Governor General of the Philippine Islands as Health Commissioner in addition to duties as chief quarantine officer of the Islands.

Ramus, Carl, P. A. surgeon, detailed as inspector of unserviceable property at Honolulu, T. H.

Ebersole, R. E., asst.-surgeon, granted leave of absence for three days on account of sickness.

Stevenson, J. W., A. A. surgeon, granted leave of absence for seven days from Feb. 27, 1905, under provisions of Paragraph 210 of the Regulations.

Ashenbach, John, pharmacist, granted leave of absence for four days from Feb. 17, 1905, under provisions of Paragraph 210 of the Regulations.

Thurston, E. J., pharmacist, granted leave of absence for ten days from March 10.

CASUALTY.

A. A. Surgeon Esteban Lopez died at Fajardo, P. R., Feb. 4, 1905.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the period from Feb. 26 to March 3, 1905:

SMALLPOX—UNITED STATES.

Florida: Jacksonville, Feb. 18 25, 2 cases.

Illinois: Feb. 18-25, Chicago, 18 cases, 2 deaths; Danville, 4 cases; Galesburg, 1 case.

Kentucky: Louisville, Feb. 16-23, 3 cases.

Louisiana: New Orleans, Feb. 18-25, 14 cases, 1 death, 5 cases imported.

Massachusetts: Boston, Feb. 18-25, 1 case.

Michigan: At 62 places, Feb. 4-11, present.

Missouri: St. Louis, Feb. 18-25, 38 cases, 5 deaths.

Nebraska: Omaha, Feb. 18-25, 1 case.

New York: New York City, Feb. 18-25, 5 cases, 1 death.

Pennsylvania: Johnstown, Feb. 18-25, 1 case.

South Carolina: Greenville, Feb. 11-25, 5 cases, 2 deaths.

Tennessee: Feb. 18-25, Memphis, 20 cases, 2 deaths; Nashville, 2 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Jan. 1-29, 102 cases, 25 deaths.

Brazil: Nictheroy, Dec. 1-31, 44 deaths; Para, Jan. 28-Feb. 11, 4 deaths; Pernambuco, Jan. 1-15, 131 deaths.

China: Shanghai, Jan. 7-21, 21 cases, foreigners, 98 deaths, natives.

Ecuador: Feb. 9, Colta, present; Columbo, present; Guamote, present; Guayaquil, Jan. 31-Feb. 7, 1 death.

France, Paris, Feb. 4-11, 23 cases, 1 death.

Great Britain: Hull, Jan. 28-Feb. 4, 7 cases, 1 death; Feb. 4-11, Leeds, 12 cases; London, 1 case; Newcastle-on-Tyne, 6 cases; South Shields, 2 cases; West Hartlepool, 3 cases.

India: Bombay, Jan. 24-31, 109 deaths; Calcutta, Jan. 21-28, 2 deaths; Karachi, Jan. 22-29, 1 case, 1 death; Madras, Jan. 21-27, 1 death.

Italy: Catania, Jan. 26-Feb. 9, 5 deaths; Palermo, Jan. 28-Feb. 11, 43 cases, 4 deaths.

Norway: Christiania, Jan. 28-Feb. 11, 6 cases, 1 death.

Russia: Moscow, Jan. 28-Feb. 4, 5 cases, 1 death; Odessa, Feb. 4-11, 2 cases, 1 death.

Straits Settlements: Singapore, Jan. 7-14, 1 death.

Switzerland: Geneva, Jan. 21-Feb. 4, 2 cases.

Turkey: Constantinople, Jan. 30-Feb. 6, 6 deaths.

West Indies: Grenada, Jan. 26-Feb. 9, 8 cases.

YELLOW FEVER.

Brazil: Manaos, Jan. 25-Feb. 8, 3 cases, 2 deaths; Para, Jan. 27-Feb. 11, 2 deaths.

Ecuador: Guayaquil, Jan. 31-Feb. 7, 2 deaths.

Mexico: Coatzacoalcos, Feb. 12-18, 1 case, 1 death.

Panama: Panama, Jan. 1-Feb. 14, 27 cases, 7 deaths.

CHOLERA.

India: Calcutta, Jan. 21-28, 103 deaths.

Russia: Jan. 16-23, 6 cases, 4 deaths.

Turkey in Asia: Van, Jan. 9-24, 59 cases, 20 deaths; to Jan. 24, 1,200 cases, 500 deaths estimated.

PLAGUE.

Africa (Portugese): Lorenco Marquez, Jan. 17, 5 cases (suspect); Port Florence (British), Jan. 5-12, 9 cases, 8 deaths.

Arabia: Aden, Jan. 21-28, 154 cases, 128 deaths; week ended Jan. 21, 113 cases corrected by Aden plague authority.

Argentina: Buenos Ayres, Jan. 28, 9 cases (suspect).

Brazil: Nictheroy, Dec. 1-31, 1 death; Para, Jan. 28-Feb. 11, 2 deaths.

Egypt: Suez, Jan. 21 28, 3 cases, 1 death.

India: General, Jan. 14-21, 33,083 cases, 28,104 deaths; Bombay, Jan. 24-31, 408 deaths; Calcutta, Jan. 21-28, 58 deaths; Karachi, Jan. 22-29, 60 cases, 53 deaths.

Siam: Bangkok, Dec. 22-Jan. 3, 2 cases, 2 deaths.

Straits Settlements: Singapore, Dec. 31-Jan. 14, 3 deaths.

Isthmian Sanitation.

THE PANAMA CANAL MISMANAGEMENT.

Report to the Government by Dr. Charles A. L. Reed, Showing How the Commission Makes Efficient Sanitation Impossible.

Dr. Charles A. L. Reed, immediately on his return from Panama, March 1, filed the following report with the Secretary of War:

WASHINGTON, D. C., March 2, 1905.

Honorable William H. Taft, Secretary of War.

DEAR SIR:—Pursuant to your request I have the honor herewith to submit the report of my observations relative to the status of sanitation and of the sanitary department in the canal zone and in the cities of Colon and Panama.

I arrived at Colon on the 7th of February and sailed from that city on the 22d of the same month, thus affording me fifteen days in which to study, with more or less care, the conditions of organization and the details of administration as they relate to the public health interest.

Sanitary Staff Efficient.

I was given every facility in this regard by General Davis, the Governor of the Zone; by Mr. Wallace, the Chief Engineer; by Colonel Gorgas, the Chief Sanitary Officer; as well as by his associates, Major La Garde, Lieutenant Lyster, and Dr. Carter. As a result of this investigation I became impressed with the efficiency and the zeal of the sanitary staff; with the fact that very much has been accomplished in the way of sanitation under exceedingly adverse circumstances; that much remains to be done which can not be done unless better facilities are afforded; and that very much more ought to be done and would have been done if the facilities had been properly furnished.

I was forced to this conclusion, not only by what I saw and heard while on the Isthmus, but by a careful study of the published proceedings of the Isthmian Canal Commission, by a study of the laws of the canal zone formulated by that commission, and by a careful consideration of their first annual report, submitted under date of Dec. 1, 1904.

Importance of Sanitation Recognized by Both Governments.

The situation became all the more impressive from the fact that the question of sanitation on the Isthmus was considered of so much importance that it was made a subject of special provision in the canal convention entered into between the Republic of Panama and the United States. There is in fact no stipulated cession from Panama to the United States that does not carry with it the expressed right of sanitation. This is true not only of the zone proper, but it is likewise agreed that:

> The cities of Panama and Colon, which lie outside of the canal zone, shall comply in perpetuity with the sanitary ordinances, whether of a preventive or curative character prescribed by the United States, and in case the government of Panama is unable or fails in its duty to enforce this compliance by the cities of Panama and Colon with the sanitary ordinances of the United States the Republic of Panama grants to the United States the right and authority to enforce the same.

The above provision of treaty entered into by the two countries was the logical result of the disastrous experiences: first, of the Panama Railroad under the three companies that were successively identified with its construction, and, later, by the two French companies that had attempted to dig the canal. That sanitation was indeed the fundamental problem to be solved before even the engineering question could be subjected to successful solution had been reduced to a demonstration.

This view of the case was manifestly accepted by the President, who, on the formal installation of the Isthmian Canal Commission, addressed that body in part as follows:

> There is one matter to which I wish to ask your special attention—the question of sanitation and hygiene. You will take measures to secure the best medical experts for this purpose whom you can obtain, and you will, of course, make the contractors submit as implicitly as your own employes to all the rules and regulations of the medical department under you. *I presume you will find it best to have one head for this medical department*, but that I shall leave to your own judgment.

The italics by the writer indicate the views of the President, subsequently expressed to the writer, that by having Colonel Gorgas placed in full charge of the sanitary work instead of on the commission itself, as had been urged by the medical profession of the United States, he would be untrammeled with extraneous duties and would consequently have better opportunity to make his work effective than if he were actually a member of the executive board.

The Organization of the Health Department.

At the meeting of the commission, held at Ancon, August 28, 1904, Mr. Grunsky, as the committee on a proposed health department, presented a report which began by stating that "after repeated conferences with" Colonel Gorgas and with practically the entire sanitary staff, "it has been agreed," but which should have stated that "in certain important particulars Mr. Grunsky has agreed with himself"; for, as a matter of fact, much of the report was formulated over the respectful protest of the medical men who were invited to the conference. By this report the commission, more especially Mr. Grunsky, provided for the creation of a board of health with power to formulate regulations which would become effective only after approval by the commission, or, in cases of emergency, only on the approval of the governor of the canal zone. Thus the chief sanitary officer who had been sent to the zone to clear it up and to make it ready for the actual work of the engineers had his discretion limited to the enforcement of regulations that had first been adopted by the commission or by a board of health; in which latter event it had to be sent generally to Washington to be endorsed by the commission, or, in cases of emergency, it could be approved or rejected by the governor of the zone.

The Extraordinary Subordination of the Sanitation Staff.

It thus came about that the chief sanitary officer, whom and whose department the medical profession had asked to be made largely autonomous; whom and which the President himself had obviously intended should be largely autonomous, was, by the action of the commission, more especially Mr. Grunsky, subordinated to the governor of the zone; to the chief disbursing officer; to the chief of the bureau of material and supplies; to Mr. Grunsky; to the commission; to the Secretary of War; to the President; subordinated in fact in the seventh degree from the original source of authority. And this is the state of affairs on the Isthmus to-day. One can not but be impressed with the anomalous condition by which a man of Colonel Gorgas' distinction, the foremost authority in the world in solving the peculiar problems that are connected with sanitation on the Isthmus, being made subordinate of a whole series of other subordinates who are confessedly ignorant of the very questions with which he is most familiar.

How the Machine Does Not Work.

It is interesting to inquire into the working of this wonderful mechanism. Thus, if Major La Garde, superintendent of Ancon Hospital, makes a requisition for supplies, he must make it in due form, take it for approval to the chief sanitary officer, then to the governor of the zone, then to the chief disbursing officer; whence it goes to the commission at Washington; then to Mr. Grunsky as committeeman; then back to the commission; then, if allowed, bids are advertised for; awards are made; the requisition is filled under the supervision of a purchasing agent notoriously ignorant of the character and quality of medical and surgical supplies; the material is shipped to the Isthmus, consigned to the chief of the bureau of materials and supplies, who notifies the disbursing officer, who notifies Colonel Gorgas, who in turn notifies Major La Garde, who applies to the quartermaster—the boss of a corral—for transportation, and so much of the stuff as in the judgment of, first, the governor, next the chief disbursing officer, next the commission, next, and more particularly, Mr. Grunsky, ought to be allowed to the superintendent of Ancon Hospital finally arrives or does not arrive at its destination. This is no fanciful picture; it is exemplified in practically every ordinary requisition that goes forward. And what is true of Ancon Hospital is true at Colon, at Culebra, at Miraflores and at all points along the line that require supplies of this description. It is true that in the presence of emergency it is not necessary to send clear to Washington, and certain purchases are permitted and authorized in the open market at Panama, but always, of course, at greatly increased prices.

An instance in point occurred a few days before my departure from Ancon: A woman in the insane department was delivered of a child; her condition was such that she could not nurse her offspring; the nurse applied to Major La Garde for a rubber nipple and a nursing bottle; he had none—the requisition of last September had not yet been filled; he made out a requisition, took it to Colonel Gorgas for indorsement, then to Mr. Tobey, chief of the bureau of materials and supplies for another indorsement, then to a clerk to have it copied and engrossed; then a messenger was permitted to go to a drug store and buy a nursing bottle and a nipple, which finally reached the infant two days after the necessity for their use had arisen. The articles ought to have cost not more than 30 cents, but counting the money value of the time of the nurse, of Major La Garde, of his clerical help, of Colonel Gorgas, of Mr. Tobey, of Mr. Tobey's clerks, of the messenger, the cost to the government of the United States was in the neighborhood of $6.75—all due to the penny-wise-and-pound-foolish policy of the commission, more especially of Mr. Grunsky.

Other Examples of the Littleness of the Commission.

This commission, one would naturally suppose, was appointed to solve great general problems and to lay down broad general principles relating to the gigantic work to be done, leaving the execution of details to better qualified persons employed for the purpose. Yet we find in the published minutes of that body that after traveling 2,000 miles it sat in solemn session at Ancon, at an expense for salaries and incidentals of $500 a day to the people of the United States, consuming much of its time with trivialities which it has placed on record, some of which are as follows:

"The request of Dr. La Garde, dated August 8, for a waiter for the Nurses' Home was" not granted, but was "laid over for inquiry."

"The recommendation of Dr. La Garde, dated August 9, that pay of the assistant baker at Ancon Hospital be increased from $35 silver to $45 silver was" not granted, but likewise "taken under advisement."

"The request of Dr. J. W. Ross, director of hospitals, dated Aug. 10, 1904, for authority to keep a pony in the stable of the commission at Ancon was" neither granted nor refused, but "taken under advisement."

"Under date of Aug. 1, 1904, the chief sanitary inspector requested authority to employ sixteen carpenters. The employment of eight, with authority to increase the number as required to twelve was authorized."

"The superintendent of Ancon Hospital, under application dated Aug. 1, 1904, and a supplemental letter from the director of hospitals dated Aug. 15, 1904, was authorized to employ twelve additional nurses as required."

"The superintendent of Ancon Hospital, under his applications dated July 20, 1904, and Aug. 8, 1904, was authorized to hire an additional waiter and a waitress to be assigned to duty as necessary."

"The request of Dr. William Fawcett Smith, stationed at Gorgona, for a personal servant, was disallowed."

Numerous other instances could be cited from the published proceedings of the commission to show that it consumed its time in carefully scrutinizing minutiæ of administration that ought to have been entrusted successfully to the men employed for the purpose. Colonel Gorgas and Major La Garde are both officers of high grade and extensive experience and are gentlemen of recognized integrity and ought certainly to have been accorded the generous confidence by which they could dispose of such questions of detail at their own discretion. They ought, furthermore, to be entrusted with a contingency fund or emergency fund by which to make small purchases, but this was specifically disallowed to Major Gorgas, the intimation being conveyed to him by the commission, more especially by Mr. Grunsky, that the request was in the nature of an impertinence.

The Sanitary Department Denied the Right to Decide on the Suitability of Its Own Supplies.

The commission at Ancon last August adopted a resolution creating a department of the zone government to be known as the "material and supplies department," the chief of which is "charged with the receipt, inspection on the Isthmus, custody, care, shipment, transfer, issue and disposition of all supplies, material, equipage and floating equipment unissued and not in actual use." It is, however, specifically provided that:

> The governor of the Canal Zone, acting for the executive branch of the government of the zone, and the chief engineer, acting for the Department of Engineering and Construction, shall have authority to decide on the suitability of any and all supplies furnished, and their requisitions for such materials as are on the Isthmus shall be promptly filled without reference to a higher authority.

There is nothing said about the Sanitary Department, and as that which is not included is excluded, it follows that the right very justly accorded to the Engineering Department is denied to the Sanitary Department as such. It is obvious, of course, that the Sanitary Department, being made subordinate to "the executive branch of the government of the zone," can get supplies, but subject only to the judgment of the governor, who, by this resolution, is empowered to pass on the suitability of any or all supplies for the Medical Department or the Department of Public Health."

An example of the working of this rule was shown in the recent purchase of an *x*-ray outfit for the Ancon Hospital. The requisition went in several months ago and was pending before the commission, more especially Mr. Grunsky, when the expert who had been specially employed to do *x*-ray work in Ancon, happened in Washington and requested the privilege of selecting the Crookes tubes; the request was peremptorily refused; the expert urged that his knowledge would enable him to make better selections than would be probable by an unskilled purchasing agent, and went so far as to urge as an additional reason the distance to the Isthmus, the time involved in transportation, to say nothing of the expense involved, only, however, to be informed that if the tubes did not suit they could be returned. They came after a long delay, were found worthless and were returned; other ones have not yet been sent to replace them and, as a consequence, Ancon Hospital is to-day without *x*-ray service, while the salary of the expert goes on. In another instance objectives for a number of microscopes were carefully specified by the chief of the laboratory, who would naturally be presumed to know most about them, but the commission, more especially Mr. Grunsky, that these patients should pay according to their means had been permitted to stand without qualification. Unfortunately, however, the commission, more especially Mr. Grunsky, with his fondness for prescribing details, proceeded to lay down a per diem charge for room and for nursing at Ancon, the rates being about the same as those charged for similar service in the better hospitals of the United States. He, however, did not stop at this point, but made it a part of the laws of the canal zone that "surgical operations shall be charged for according to their importance and the financial ability of the patient to pay, but no charge in excess of $50 shall be made without the approval of the director of hospitals." As the office of director of hospitals has been abolished, the maximum rate to be charged for surgical operations, without reference to their gravity, stands at $50. It is furthermore provided by Mr. Grunsky and made part of the laws of the canal zone, that physicians connected with the hospitals must visit the residences of persons "entitled to treatment at the hospital, at a fixed daily rate of pay," which visits "shall be charged for at the rate of one-half dollar ($0.50) for each visit, but no such charge is to be made for emergency calls nor in the cases of persons entitled to free hospital treatment until after the person has been ordered into the hospital." These rates which, in the instance of surgical operations, vary from one-fourth to one-tenth of the average charge in the United States and in the Republic of Panama, and in the instance of visits, less than one-fourth of the ordinary rates charged in either of the two countries, can not but be disgusting to the medical profession in the states who are not in the least influenced by the belittling competition.

It is important, however, to bear in mind that the physicians at Ancon are in no sense the beneficiaries of the extra revenue that is thus derived by extra service that is thus imposed on them. On the contrary, it is provided by the commission, more especially by Mr. Grunsky, and duly engrossed in the laws of the canal zone that:

> The money realized in the hospitals from charges for board, medical attendance, surgical operations and the like, and from visits at residences as set forth, shall be considered public funds and turned over to the government of the canal zone.

It follows, therefore, that it is not the medical men sent to the canal zone, but the United States, our own great nation itself, that is engaged in this belittling business, which must be recognized as a personal insult to any decent practitioner of medicine in any country of the world.

In the Republic of Panama it amounts to more than an insult; it is an actual damage. This was brought to my attention by one of the most distinguished members of the medical profession of that country, who first made me aware of the situation, and who did so in terms of bitter complaint. He explained that under the operation of this order of things, and in spite of the existence of other hospitals in Panama, private patients, attracted by the cheap rates and the prestige of the medical staff at Ancon, are flocking to that institution to the present serious embarrassment and prospective ruin of medical practitioners.

I took the liberty to mention this matter in the course of a personal interview with President Amador, himself the most distinguished medical practitioner of the republic. As he is a friend of long standing, I had no hesitancy in broaching the subject and no difficulty in securing from him a very frank expression of fact that the situation had become so serious that he had been waited on by his colleagues of the medical profession, his constituents and fellow-citizens, by whom he had been requested to make formal representations on the subject to the American minister, but that he had desisted out of his great desire to avoid even the semblance of friction with the United States, and in the belief that a knowledge of so flagrant an injustice would sooner or later reach executive circles in Washington and would be corrected.

But a commission that is capable of thus busying itself with petty but, in their hands, annoying and obstructive details, would naturally enough be expected to forget matters of real importance. One can not, however, even at the hazard of seeming impertinent, enquire: "Why is there yellow fever in Panama?"

Why is there Yellow Fever in Panama?

Yellow fever is demonstrably a preventable disease, and as a consequence all deaths resulting from that disease must at once raise the question of responsibility. Panama has long and justly been recognized as a seat of yellow-fever infection, just as was Havana before the brilliant sanitary achievements of Colonel Gorgas in that city—achievements which resulted in his call to the Isthmus. The real campaign against the disease in Havana, more particularly against the disease-bearing mosquitoes, lasted from January to September, 1901. As Panama is but a village in comparison with the Cuban metropolis, it was naturally expected that similarly satisfactory results would be realized there in the same if not less time. But yellow fever is still endemic in Panama. Why *is this true?*

The dangers of the situation were thoroughly appreciated by Colonel Gorgas, even before he went to the Isthmus, and he laid before the commission a plan of campaign which embraced several distinct features, namely:

1. The installation of a sewer system in the cities of Colon and Panama.
2. The installation of water supply in those cities.
3. The cleaning of the streets including the disposal of garbage and night soil.
4. General sanitation of houses including their fumigation and the drainage of neighboring pools, the abolition of water barrels and cisterns and other places for the propagation of the yellow fever mosquito..
5. The prompt isolation of all cases of yellow fever.

These various steps bore such a logical relation to each other that one would become practically inoperative without the other. Thus, without drainage, a water supply would only augment the evil; without both it would be impossible to abolish the cisterns and water barrels that are breeding places of the yellow-fever mosquitoes; without abolishing the breeding places of these mosquitoes, it would be useless to attempt the formation of more than demonstrably infected houses.

This view was apparently accepted by the commission, even including Mr. Grunsky, before the first visit of that body to the Isthmus, and it was likewise the view still held by Colonel Gorgas and by the entire personnel of the sanitary department, as well as by Mr. Wallace, the head of the engineering department, when, on June 28, the sanitary government was established in the canal zone. Panama was then apparently free from yellow fever, but Colonel Gorgas, with his Cuban experience, and knowing the danger that was lurking in the immediate future, set about promoting these complete measures of prevention, while Mr. Wallace addressed himself to plans and specifications for water-works and sewer system for Panama. The plans of both of these men went promptly before the commission, but it was not until that body had returned to the Isthmus, in August following, that they were given serious consideration; meanwhile, the danger of which Colonel Gorgas had forewarned them had developed; for, on July 12, Charles Cunningham was stricken with yellow fever, from which he died two days later. Fourteen days after this death another case developed, which, however, went on to recovery. When the commission arrived at Ancon on the occasion of its second visit, that is, on August 3, Colonel Gorgas again urged the prompt assumption of sanitary control over Colon and Panama, and cited the case still in the hospital, and the fatal one that had preceded it, as danger signals of sufficient gravity to justify action. But the commission, more especially Mr. Grunsky, had not yet determined the degree of humiliating subordination to which the sanitary department was to be subjected, and, under pretext of perfecting a plan of organization, deferred action for another three and one-half weeks—valuable weeks—that is, until August 28. On this date the commission, on the report of Mr. Grunsky, adopted Mr. Grunsky's plan of organization, by which, as I have already shown, Colonel Gorgas was subordinated to the seventh degree below the original source of authority. Even then, with the cases of yellow fever staring them in the face, the commission, at the instance of Mr. Grunsky, directed Colonel

Gorgas, acting through Governor Davis, to refrain from any attempt to secure sanitary control over the cities of Colon and Panama, citing certain more or less diplomatic frivolities as a pretext for deferred action. It was only after four or five months had elapsed, only after the progressive development of yellow fever had reached the sensational point, and only after the personnel in the canal zone had become thoroughly alarmed over the situation, that Colonel Gorgas was permitted by those in authority over him to assume the sanitary control of the two cities, one of which, Panama, having by this time become very generally infected.

But even then his hands were tied, sometimes, and in important particulars, by the arbitrary exercise of superimposed authority, but all the time, and in still more important particulars, by the fact that the water supply and the sewage system were not installed. Mr. Wallace had drawn the plans and specifications in July previous, and had taken care to specify only such pipe as manufacturers keep in stock, and that could therefore be procured without a moment's delay. But the commission, more especially Mr. Grunsky, in total disregard of the emergency that was present, saw fit to indulge in some views about pipe, and as Mr. Grunsky is a civil engineer and needed to impress the fact on somebody, he summoned Mr. Wallace, confessedly one of the ablest of engineers but now his subordinate, before the commission to explain why he had specified both eastern and western standards of pipes. The explanation given by Mr. Wallace that either one or both of these standards would answer the purpose, and that it had been simply his desire to purchase the pipe promptly, if necessary in small lots, and to get the pipe promptly on the Isthmus, seemed to make no appeal to either the commission or Mr. Grunsky; and pipe of the western pattern alone was ordered. The delay in the consideration of this particular point consumed another precious two weeks, after which Mr. Wallace was authorized to proceed with the work. This he undertook with his characteristic energy, and allowing for all reasonable delay in procuring the pipe and in sending it to the Isthmus, promised the people of Panama that they should have water by December. He finished the work at the Rio Grande reservoir in a short time; the trenches for the pipe were dug, washed full of dirt and redug, but still there was no pipe. Mr. Wallace then cabled to Washington, urging that the pipe be sent, only, however, to receive a reprimand from Admiral Walker, chairman of the commission, admonishing him that cablegrams from the Isthmus were expensive. It is now nearly the first of March, and the schooner which brought the first consignment of pipe, not enough to complete the work at Panama, was discharging the cargo at Colon as I left. It is further understood that before the work can go on this same schooner must sail back to Mobile, await the arrival there of enough pipe to make a full cargo, then sail back to Colon and again unload—a proceeding that, at a conservative estimate, will consume at least from two to three months. And all this by a commission that controls a line of steamers plying weekly between New York and the Isthmus!

In the light of all these facts, in contrast with the brilliant results achieved by Colonel Gorgas in Havana, where he was given not only a free hand, but his own purchasing and distributing agents, the responsibility for the present existence of yellow fever on the Isthmus can be placed nowhere else than on the Isthmian Canal Commission, more especially on Mr. Grunsky.

The Campaign Against Malaria Thwarted by the Commission.

But sensational as is yellow fever, now apparently on the increase at the Isthmus, the fact remains that malaria is the more serious pest. The discovery that malaria is disseminated by the anopheles has, however, made it possible to minimize the disease by proper preventive methods. These embrace (*a*) drainage, (*b*) the isolation of malarial patients, (*c*) the prophylactic synchronism. That these three things might be done, and done before the onset of the dry season, Colonel Gorgas asked the commission last August to furnish men to dig ditches and drain pools about the houses of natives; he asked also for wire screening with which to isolate all patients afflicted with malaria, and quinin with which mildly to cinchonize laborers and others exposed to the malaria bearing mosquitoes. The commission, more especially Mr. Grunsky, however, thought that the number of ditchers asked for, something like twenty, was too many, and allowed only half those estimated, but as the dry season has arrived and is almost past, and as the small squad of ditchers is still digging, it would seem that the original estimate was justified by the necessities of the situation. The wire screening was likewise cut down from 2,500 yards to 500 yards, and even that has not yet arrived on the Isthmus. The use of quinin as a preventive of infection did not commend itself either to the great therapeutic skill or to the economic judgment of the commission, more especially of Mr. Grunsky, so the observation of medical men with previous experience on the Isthmus, the conclusions of authorities in tropical medicine, such as Munson and Giles, the investigations of the Italian authorities, and the unequivocal verdict of Koch, were pushed aside and quinin for this purpose was stricken from the list.

The result is that while much has been accomplished by drainage, and by the admission of small fish into the runnels made by the small force of workmen, and while much has been accomplished by the prophylactic use of quinin by the personnel and employes of the higher grades, and taken by them in spite of the action of the commission, the fact remains that in the absence of the wire screening ordered last August, each case of malaria becomes a focus for the further dissemination of the disease. This is shown even at the Ancon Hospital, where in the complete absence of wire screening for the malarial wards and the consequent impossibility of excluding the malarial-bearing mosquitoes, non-malarious patients are becoming malarious, while both nurses and attendants are being made frequent victims of the disease. Two members of the medical staff likewise were suffering from malarial infection during the time of my stay at Ancon. Yet in spite of these facts the Isthmian Canal Commission, in its report under date of Dec. 1, 1904, page 88, states that "all cases of employes sick with malaria are taken into the Colon and Ancon hospitals and so screened that mosquitoes can not reach them"—a statement that is an absolute and an unqualified falsehood.

Cheap Nursing Service.

This report might be indefinitely amplified, but time will not permit. I feel it important, however, to allude to the fact that the policy that the commission, more especially Mr. Grunsky, has adopted with reference to furnishing cheap medical service to those who risk their lives in the zone has been adopted for the purpose of furnishing nurses for service in the Sanitary Department. The effort has been made under the subterfuge of establishing a training school to be conducted at Ancon, to get nurses to go to the zone at about the same rate that is paid for pupil nurses in the training schools of the United States. The same conditions, practically, are imposed on the nurses with reference to time service that is imposed on the internes, with the difference, however, that the period of enforced detention on the Isthmus under contract is placed at three years instead of one. This is not a place to take untrained nurses under any pretext, for nothing but fully developed talent in the various departments of activity should be sent to the Isthmus.

Conclusion.

In view of the foregoing facts and disregarding equally serious facts relating to the Department of Engineering and Construction, facts which the really valuable services of such individual commissioners as Messrs. Parsons and Burr could not entirely neutralize, but on which I do not feel qualified or authorized to report, I beg leave to call attention to the further observations of the President when he inducted the commission into office, as follows:

> I believe that each one of you will serve not merely with entire fidelity, but with the utmost efficiency. If at any time I feel that any one of you is not rendering the best service which it is possible to procure. I shall feel called on to disregard alike my feelings, and forthwith to substitute for him on the commission some other man whom I deem capable of rendering better service.

In view of the facts which I have presented, in view of many more facts of similar purport which might be presented, in view of the President's manifest and expressed wishes and their complete disregard by the commission, but more particularly in view of the vital interests at stake, I have the honor not only to submit the suggestion, but really to urge that the time has arrived when the President ought to redeem his word and ask for the resignation of the commission.

I have the honor to be, very respectfully,

Charles A. L. Reed,
Chairman of the Legislative Committee of the American Medical Association.

Medical Organization.

ORGANIZATION NOTES.

James Hall Bell, M.D.
SAN ANTONIO, TEXAS.

When the great organization plan of the American Medical Association is carried out, the profession will have the power as it already has the disposition and intelligence, ultimately to compel legislation in the right direction. Should this power be wisely exercised, as doubtless it will be, we shall have in operation a plan of general government exactly and impartially suited to the necessities of medical men in the various important external relations they virtually sustain to each other and to society. This means the eventual obliteration of interruptive state lines, and that every phase of medicine properly under statutory control will be made uniform in all the states and territories. This epitomization of our future model organization, so universally helpful in its provisions and utilitarian in its purposes, is not the idle creation of a dreamer; its realization is clearly within the bounds of reasonable hope and expectation, and within the reach and power of intelligent and organized effort.

In the furtherance of its plans for a more suitable dwelling place, so to speak, the profession has an imperative duty to perform. With unanimity of purpose, it must build on the solid foundation already laid, a superstructure which shall vindicate the wisdom, necessity and impersonal authority of a perfected organization. From the performance of this duty no one should shrink.

A perfected organization, however, is not the only means of grace; it does not carry with it the assurances of professional salvation. The increased facilities afforded men to do better work under the wiser provisions and uniformity of law, do not insure progress. When every right avenue is legally opened, and every wrong one legally closed, to the advancement of science, it will not of necessity utilize its powers for good in the world, and humanity may be no better off, when the old institutional stumbling blocks to medical progress are finally removed.

The development of a profession, like the development of a nation, depends on the character of its individual members, and not on the character of external relations or conditions. Climate does not make the state; the house does not make the home. Individual principles determine the established course of things in both instances. The long use and abuse of power will eventually overthrow disciplined authority, and create general confusion and anarchy in the greatest kingdom of the earth, and a man may gratify swinish appetites in the splendors of a palace, perfect in all its appointments. On the other hand, the austere assumption and rigid exercise of right principles will prevail over a frowning climate and august despotism, just as a soul of lofty genius, scorning trifles and the adventitious circumstance, will work out the great problems of human life and destiny in the squalor of a hovel.

These general observations apply with peculiar force and impressiveness to the science of medicine, which thrives or languishes, advances or retrogrades, under the dominion of individual faculties, sentiments and ideas. This fact comprehensively grasped makes it plainly evident that the splendor of scientific achievement is not chiefly a question of organization, however admirable that may be, but of personal loyalty to the intellectual and moral obligations imposed on the individual.

While, therefore, the structural changes in our new plan of government are being arranged with so few apparent hindrances, and our standards of intellectual culture are constantly raised and enforced to suit the increasing demands of scientific progress, would it not be wise and practicable to regard with deeper concern the moral aspects of professional life? Certainly no plan of government, or intellectual provision, which dismisses with negative suggestions the great moral issues involved, will ever directly eliminate quackery, prevent the questionable practices of the medical politician, or practically discourage the disgrace and bitterness of petty and compromising personalities. These are moral questions and must be dealt with on moral grounds. Our moral standards, like our educational standards, should be compulsory. The one is just as important as the other and as easily enforced. Our present attitude on this question may be expedient for the time, but it should not be accepted as the fixed policy of the American Medical Association.

Travel Notes.

AN INTERSEMESTRAL EXCURSION.

LEWELLYS F. BARKER, M.D.
CHICAGO.

(Concluded from page 736.)

I have the hope that in America certain primarily clinical chairs, controlling, say, 25 or 50 selected patients each, combined with experimental laboratories, may soon be established. There is room for a medical chair, a surgical chair and perhaps for an obstetrical chair of this type. Young men thoroughly trained in physics, chemistry, physiology and pathology, as well as in the clinical work proper, devoting all their time and energy to the work of the wards and the laboratories, supported by special assistants, ought to do much toward making applicable in clinical work many of the facts of the basal sciences which are at present sterile so far as practice is concerned. Such scientific clinical positions would, I believe, have a greater influence for good than similar chairs designated by a pathologic or physiologic name. For it is in clinical work—medical and surgical—that we now need most the fructifying impulse of the scientific spirit, the productive results of wisely-chosen, well-directed scientific investigation.

During the past four or five years I have given considerable thought as to the best mode of organization of such a scientific clinical institute should the funds therefor ever be made available. And it seems to me that in such an institute, though the director should be a clinical man with unusual special knowledge and skill in the fundamental medical sciences there would have to be the co-operating activity of a number of special scientists. I do not believe that any clinical man, no matter how well trained he is, can at the same time be physicist enough, chemist enough, physiologist and biologist enough, pathologist and bacteriologist enough, to oversee and direct the work which should be done on all sides of a given problem, with equal certainty; still less do I believe that a chemist or a pathologist can, in his spare hours, acquire that immense amount of clinical experience which the leader of such an institute should possess. A group of special workers in the same institute is necessary. But the clinician should know enough chemistry and pathology and the chemist and pathologist enough clinical medicine so that the representatives of these different departments of the institute could talk intelligently on and work together toward the solution of the problem in hand.

But it will be asked, "Is not the medical faculty of a modern university, taken as a whole, just such an institute as you have in mind?" A moment's thought will show that it is not. The departments of a university and their associated laboratories have their own work, first of instruction and second of original research dealing with the general scientific problems of the special sciences themselves. These separate departments can not and dare not neglect these functions in order to work out the details of the practical applications of the facts of their sciences to clinical work. They have not appropriations large enough nor apparatus extensive enough to carry on experiments on the large scale necessary; but, far more important, the members of the staff would, by turning their attention toward the application of their sciences to practical medicine, have their time and energy diverted from their teaching and from their original work in the sciences which they represent. This would be a grave injustice to staff and students; the progress of medical science, as a whole, would be seriously endangered if the institute for a fundamental medical science were to emphasize to any considerable degree the direct practical applicability of its work rather than the methods and facts of the science itself. No; the future will see, I feel convinced, the erection and endowment of special scientific-clinical institutes, aided perhaps by the state, but supported mainly by private beneficence. Practical medicine is, in a way, a branch of technic and it will do well, in some ways at least, to follow the paths already shown to lead most quickly and purposefully to advance by certain branches of industrial technic. The great iron and steel industries, the sugar manufactories, etc., have their scientific laboratories manned by skilled physicists and chemists, directly connected with their practical works. It pays them financially to expend large sums of money in this way. In one notable instance in Germany a group of allied companies which manufacture arms, ammunition and explosives, have combined to build and maintain a scientific institute to apply the facts of physical and chemical science directly to their practical problems. The central institute for scientific-technical investigations founded by them at Neubabelsberg, near Berlin, is, according to a great chemical authority, a large, magnificently equipped and conducted laboratory, which consists of two departments, a physical-chemical and a mechanical; in this institute the latest results of science are utilized to solve technical questions as they arise.

It is some such similar organization that we need for the clinical branches of medicine. Men suited to lead such institutes, possessing the scientific clinical insight required, exist and could easily be named; it is the opportunity that is lacking. But this opportunity will not be lacking long in America; the medical profession sees the need and is urgently calling the attention of universities and philanthropists to it. Such scientific clinical institutes are sure to come. It will be interesting to see what wealthy man and what university has the honor to act first.

Leipzig.

Medical congresses are much the same in general external character the world over and the *Kongress für innere Medizin* held in Leipzig showed no marked deviation from the type. The meetings held in the *Aula* of the university were well attended. There were the usual addresses of welcome, the general and special sessions, the banquet and a concert in the *Gewandthaus*. In the Hotel Hauffe, the Hentschel and in neighboring *Gasthöfe* one saw everywhere the genial faces of physicians, glad to be freed temporarily from the grind of practice. Old friends met and chaffed one another, jolly little groups formed in the corridors and smoking rooms to discuss everything except medicine. The huge, rotund, red-faced *Alcoholiker* railed at his thin, pale and wrinkled friend, the abstainer. Three or four older men, silent, serious and important, transacted together the affairs of the managing committee. *Geheimraths* received gracefully the homage of the *Werdenden*. Ambitious, eager medical youth, as yet more or less virgin in medical-congress sense, viewed with awe and reverence the bearers of honored names; they, most of all visitors at the congress, came with serious intent; they, most of all, led there a life of conflicting emotions; it was their enthusiasm that was easiest to arouse, their criticism that was most violent, their disillusionizings that were most painful. Quite as at a Washington meeting in May!

From a business viewpoint the Germans have worked out a satisfactory method of collecting entrance fees. The most important general address to be followed by the liveliest discussion is placed on the program for the first forenoon. This is widely announced; the session is one that every member and visitor of the congress desires to attend. Everyone goes, but finds the doors jealously guarded by attendants who refuse entrance to all who do not carry tickets of admission. There is nothing for anyone to do but to descend the stairs to the bureau and pay his fifteen marks. This hint may be useful to the financial managers of American associations.

PAPERS READ AT THE CONGRESS OF INTERNAL MEDICINE.

The papers read at the congress in Leipzig include a number of unusual interest. The general subject selected for discussion this year was arteriosclerosis; it was introduced by two principal collective papers, one pathologic, by Marchand of Leipzig; the other clinical, by Romberg of Marburg. They were both good collective articles, bringing the facts of the subject together to date. Of the subsequent special articles read on arteriosclerosis perhaps that of the younger Erb of Heidelberg, "The Artificial Production of Arteriosclerosis," was of most interest. As this has doubtless been reviewed in the American journals, I need not go into its details. Now that the French and he have shown that the disease can be produced experimentally in animals, we have a better chance than ever before of gaining an understanding of it.

De la Camp of Kraus' clinic in Berlin read a paper on the determination of the size of the heart, which was of practical interest and value. A question which has agitated the minds of German clinicians greatly since the extravagant claims of a certain Dr. Smith of somewhat unsavory reputation have been made, is that which concerns the relative accuracy of the various methods of examining the size of the heart. It turns out that simple percussion, if properly carried out, gives as accurate results as any other method. The determination of the absolute heart dullness, the exactness of which may reach to within a few millimeters of the actual, permits, as a rule, the drawing of important conclusions regarding the real size of the heart. Usually, too, the part of the heart lying behind the sternum uncovered by lung substance can be measured by percussion. When the right heart is enlarged the step-like increase in the area of absolute heart dullness on the right can generally be demonstrated. For determining the true size of the heart de la Camp thinks that the method of orthodiagraphy is the best, although it is defective when the heart is markedly enlarged to the left, beyond the left mammillary line.

By combining deep percussion with palpation, the limits of relative heart dullness in more than three-fourths of the cases can be made out to within three-fourths of a centimeter. A combination of percussion with auscultation yields no more exact results.

A sharp criticism is made by de la Camp of the results of methods which use the auscultation of any kind of sound waves produced on the surface of the body for determining the size of the heart. One has to deal in such a method with the propagation of the sound waves through the thorax, and this propagation is modified by skin, muscles and bones. Smith's so-called "heart projections," he asserts, can be produced in the cadaver independently of the position of the heart. The conclusion is drawn that the high degree of variability in the size of the heart, which has been asserted to occur on the ground of the friction method, does not exist and that therefore the foundation of therapeutic measures based on it is not justifiable.

UNIVERSITY OF LEIPZIG.

Heinrich Curschmann is at the head of the department of medicine in the University of Leipzig, and the *Deutsche medizinische Wochenschrift* celebrated the occasion of the Leipzig meeting by publishing a special number, in which all the papers were drawn from Curschmann's clinic. Among the younger men in internal medicine there may be mentioned Max Friedlaender, Hans Paessler, Max Seiffert and Karl Hirsch.

Surgery is the master clinical subject in Leipzig, represented as it is by Trendelenburg, Tillmanns, Th. Kölliker and G. Perthes. Among the men in junior positions in surgery there, v. Lesser, P. Wagner, H. Braun and Max Wilms may be included.

The scientific laboratories of the medical faculty in Leipzig are among the strongest in Europe. Anatomy, under Professor His, with his staff including Spalteholz, Fick, Held and Kaestner, has had a great development. It was in this laboratory that many of our best American anatomists got at least a part of their training. During the past year, under Professor Spalteholz's direction, Prof. C. B. Jackson of the anatomic department of the University of Missouri carried on an excellent research on the nature and origin of the bone marrow, and Dr. Retzger of the same state demonstrated the anatomic continuity of the muscle of the atrium of the heart and the ventricle, a connection which the physiologists had long ago postulated.

Spalteholz, now that his atlas is off his hands, is concentrating his energies on research work. It is interesting to note in passing that he, too, is profoundly impressed with the importance of the application of chemical methods for progress in the morphologic sciences. In a recent address entitled *"Mikroskopie und Mikrochemie"* he has pointed out the needs in this direction.

The death of Professor His has been felt as a heavy blow by the Leipzig faculty. Although he was nearly 73 years old he had worked daily in the laboratory up to within a few weeks of his death. In a monograph on "The Development of the Human Brain During the First Month," he continued his famous studies on the embryology of the nervous system. In spite of the opposition of Bethe and Nissl, he retained his view regarding the appearance and development of the neuroblasts unaltered, and stated that he held it as established that every nerve fiber arises as a process from a single cell.

Shortly before his death His returned to the study of formalinized cadavers—a field in which he had earlier made most important contributions to science and to teaching. One of his last articles deals with the form and position of the human stomach, the paper being based on eighteen original casts of the organ hardened *in situ*. Prof. His' researches in this direction have shown conclusively that the schemata hitherto adopted are not in accordance with the facts; aside from individual variations, a series of types due to physiologic conditions must be differentiated, such as the empty stomach, the full stomach, the overdistended stomach, the male stomach and the female stomach.

His struggled always for clarity of anatomic ideas. He was the enemy of chaos and vagueness in anatomic conceptions; he was original in his methods and in his mode of approach to anatomic problems. His artistic sense was markedly developed and his work was characterized by an accuracy and a diligence which was remarkable. One has only to repeat the observations of His in order to be astonished at his exactness.

Anatomic Congress at Jena.

The anatomic congress in Jena was an example of what a periodical science meeting in Germany may be. Held in a delightful old university town, with an attendance limited to actual workers in anatomy, the congress had a peculiar charm and pleasure which is lacking where an anatomic meeting is held merely as one section of a large congress of scientists. It may well be questioned if the advantages gained from combined meetings of scientific societies compensate for the losses sustained.

The most interesting discussion at the congress bore on the much vexed question of the origin and nature of the peripheral nerves. Schultze and others supported the old doctrine of Beard and Dohrn as revivified by Bethe, that the peripheral nerves do not arise as outgrowths from single nerve cells but are formed by end-to-end fusion of elongated cells seen in the course of the nerve in the developmental period—cells corresponding to what are usually designated the forerunners of the neurilemma-cells. Von Kölliker and others strongly opposed Schultze's idea and supported the generally accepted doctrine. It is a pity that the beautiful experiments of Harrison, reported later in the summer, were not available in time for the meeting. Harrison, by a most ingenious experiment, seems to have definitely settled the question. Asking himself, "What is the origin of the elongated cells which appear in the course of a developing nerve?" it occurred to him that they might come from the neural crest along with those cells which give rise to the spinal ganglia. In young frog embryos he cut out the neural crest and allowed the mutilated embryos to develop. On killing them later, he found that not only had no spinal ganglia developed but that the elongated cells in the course of the peripheral nerve had also failed to appear. In spite of their absence, however, naked axis-cylinder processes had grown out from the ventral horn cells of the spinal cord to the muscles.

THE CARL ZEISS WORKS.

An interesting feature of the congress was the arrangement made for visits to the Carl Zeiss works and to the Schott glass manufactory. These two industries have transformed Jena. Starting on a very small scale many years ago, they have gradually expanded into the immense enterprises of to-day. Through the courtesy of the Zeiss people, visitors to the congress were conducted through the works and permitted to examine every stage of the manufacture of the wonderful optical instruments there produced. The enterprise is an admirable example of what a manufactory may accomplish when its ideals are not confined to the plane of money-getting. Abbé has been the genius of the institution, but, aside from his marvelous practical power and scientific insight, he has made himself famous by establishing a unique co-operative society known as the Carl-Zeiss Stiftung. Zeiss and Abbé had been partners and when the former died he was succeeded by a son whose talent lay in a different direction, so that his share was bought by Abbé. Desiring in the first place to arrange that the factory would continue its work and its ideals after his death, and in the second place to try an experiment in social and commercial betterment, Abbé decided to give his whole property to a corporation, which should be permanent. It is in the organization of this corporation that Abbé has completed a piece of work which many regard as more significant than any of his optical findings, and for which he has been given the honorary title of *Doctor juris* by a German university. An account of this work as given by Auerbach[7] makes very interesting reading. A perusal of it may be recommended highly to all who interest themselves in the great questions of the relations of capital and labor. Not only do the scientists of the institution have a part in the ownership, but all officers, clerks and workmen, as well as the city itself and the university; all are concerned in creating the values, hence all are to have a share in the profits. In this way it has been possible to establish close relations between means and ends.

In the rules controlling the corporation Abbé has shown his great wisdom. It would take too long to go into the details of the organization; they require careful study in order that they may be fully understood. Suffice it to say that the corporation permits of a management by scientific and business men without exciting antagonism; on the contrary, commanding the interest, loyalty, effort and enthusiasm of the workmen. The profit-sharing scheme has been most ingeniously worked out, apparently to the satisfaction of all. Pension in old age and injury-money for six months in case of discharge are features of the plan.

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[7] Auerbach, F.: Das Zeisswerk und die Carl-Zeiss-Stiftung in Jena, ihre wissenschaftliche, technische und soziale Entwickelung und Bedeutung für weitere Kreise dargestellt. Zweite, vermehrte Auflage, Jena, 1904.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Hamamelis Virginiana.

Hamamelis, according to H. R. Coston in *Ther. Gazette*, is a tonic, astringent, hemostatic, antiseptic and vascular sedative, having a special action on the muscular coat of the vessels. Applied locally, it is a valuable remedy for sprains, bruises, fissure in ano, ulcers, varicose veins and the accompanying intractable ulcers. It is of service also, according to the author, in the treatment of phlegmasia alba dolens, eczema, and the poison from rhus toxicodendron. It is also used in the treatment of urticaria from whatever cause.

In cases of capillary hemorrhage and of intermenstrual oozing where the endometrium is lax and congested, this preparation should be applied locally and repeated every few days. By this treatment, he is of the opinion that many curettements may be avoided. In cases of sore and bleeding gums, relaxed uvula and oral ulcers the following is recommended:

R.	Ext. hamamelidis			
	Aquæ rosæ, āā	℥iv	120	

M. Sig.: To be used as a mouth wash.

It also is said to possess marked sedative properties, and the distilled extract is valuable as a dressing for burns and herpetic eruptions. Hyperidrosis is relieved by sponging with hamamelis and this drug is also recommended as a local application in the treatment of articular rheumatism; it is applied with thorough friction. In hypertrophic nasal catarrh, good results are said to follow the use of weak solutions of hamamelis in the form of a spray, or applied locally by means of a swab. In ulcers and varicose veins the fluid extract is preferred in full strength or combined with one-fourth the amount of glycerin or olive oil. For congested conditions of the hemorrhoidal vessels, it is recommended in the form of a suppository. For this purpose it may be combined as follows:

℞.	Ung. hamamelidis			
	Ung. stramonii, āā	gr. x		65
	Ol. theobromæ q. s.			

M. Ft. suppos. No. i. Sig.: One such suppository night and morning after cleansing the bowels.

He recommends it internally as a tonic to all the mucous surfaces, and states that it is valuable in hemoptysis, hematemesis, menorrhagia, metrorrhagia, and especially valuable in hematuria in half dram (2.) doses. In hematemesis it should be given combined with a solution of adrenalin. In hemoptysis it may be combined with ergot and digitalis. In those forms of vascular diseases, accompanied by distention of the caliber, as in varicocele, varicose veins and varicose ulcers, it serves a good purpose, and is an excellent application when one is in need of a sedative, astringent and antiseptic dressing.

In cases of acute dysentery Shoemaker recommends the following preparation containing hamamelis:

℞.	Ext. ergotæ fld.			
	Ext. hamamelidis fld., āā	℥iss	45	
	Elix. guaranæ	℥ii	60	

M. Sig.: Two teaspoonfuls in water every two or three hours.

He also recommends hamamelis ointments in the treatment of burns, erysipelas, eczema and herpes. In seborrhea, acne and rosacea he advises the following combination:

℞.	Ext. hamamelidis fld.	ʒi-ʒiss	4.-6	
	Zinci oxidi	ʒi	4	
	Pulv. amyli			
	Glycerini, āā	ʒss	2	
	Ung. aq. rosæ	℥i	30	

M. Sig.: As an ointment for burns, sunburn, eczema, seborrhea and acne.

In cases of frostbites the following is recommended by the same author:

℞.	Liq. plumbi subacetatis.			
	Tinct. opii, āā	℥i	30	
	Aquæ hamamel. destil.	℥ii	60	
	Aquæ	Oi	500	

M. Sig.: To be applied locally to relieve the burning and itching. In cases of pemphigus he advises the following:

℞.	Creosoti			
	Liq. calcis			
	Aq. hamamel. destil., āā	℥iii	90	

M. Sig.: To be applied locally.

Pertussis.

The following combination is recommended by the *Med. News* in the treatment of whooping cough:

℞.	Sodii bromidi	gr. xlv	3	
	Antipyrini	gr. xv	1	
	Glycerini	ʒii	8	
	Aq. cinnamonii q. s. ad	℥iii	90	

M. Sig.: One teaspoonful every two hours for a child of one year.

Hygiene Thérapeutique recommends that the patient suffering from pertussis should occupy a large, sunny, airy room. The diet should be substantial, but not bulky. During the acute attack, the patient should have his head supported and the mouth cleansed of mucus. The eyes and ears should be washed frequently with boiled water and the following antiseptic used:

R.	Menthol	gr. iii		20
	Acidi borici			
	Resorcini, āā	gr. xxx	2	
	Petrolati mollis	℥i	30	

M. Sig.: Place a small piece the size of a pea in each nostril three times a day.

Maier recommends nasal irrigation with a very weak salt water solution. Isolate the patient and watch for complications, such as bronchopneumonia. In such cases he recommends the following:

℞.	Potass. iodidi	ʒii	8	
	Tinct. belladonnæ	m. xx	1	30
	Liq. ammon. anis	ʒi	4	
	Syr. tolutani	℥i	30	
	Aquæ q. s. ad	℥iii	90	

M. Sig.: One teaspoonful every three hours.

Other preparations, such as bromids, stimulants, camphor and benzoic acid are also recommended by the author.

Acne in Children.

The treatment of acne in children, according to *Jour. des Pract.*, consists in the restriction of the diet. Coffee, pork, fish, pastry, cheese and spices should be restricted.

The following combination is recommended before meals:

℞.	Sodii bicarb.	gr. iii		20
	Magnesiæ calcinata			
	Pulv. cascaræ sagradæ, āā	gr. iss		09

M. Ft. capsula No. i. Sig.: One capsule to be taken before each meal.

The face should be washed in very hot water in which have been boiled bran and sodium borate. In the evening, after washing the parts with naphtha soap, the following ointment should be applied:

R.	Beta-naphthol.			
	Tinct. saponis viridis, āā	gr. ivss		27
	Cretæ prep.			
	Sulphuris lati, āā	gr. viiss		50
	Petrolati	ʒvi	24	

M. Ft. unguentum. Sig.: Apply locally.

The following morning, after bathing the face, the following lotion is recommended:

℞.	Sodii boratis	ʒi	4	
	Spts. etheris sulph.	ʒv	20	
	Aq. rosæ	℥iss	45	
	Aq. destil.	℥iiss	75	

M. Ft. lotio. Sig.: Apply locally to the affected parts.

Paralysis Agitans.

Dana, in *Cornell Univ. Med. Coll. Reports*, recommends exercise in the treatment of paralysis agitans, with the object in view of overcoming the weakness and stiffness in the muscles and to overcome the tendency to tip forward while walking.

EXERCISES FOR WALKING.

1. The patient should be instructed to walk up and down the room, taking long steps, at least 28 inches to a stride, and to take 40 steps, then rest.

2. After practicing this for a time, he should walk with the eyes fixed on a point on the ceiling directly over the top of his head as he walks. This compels him to throw the head and shoulders back. He should take long steps, walking in this manner forty times, then rest.

3. He should then learn to turn around rapidly. He should walk according to the foregoing instructions for ten steps, promptly turn around and walk back, and repeat this three or four times, then rest.

EXERCISES FOR THE ARMS.

1. The patient should take a pair of wooden dumbbells, stand erect, and raise them from his side above and back of his head, touching them together. This is to be repeated four times. Holding the dumbbells out straight in front of him, he should carry them back as far as possible in a horizontal line and repeat four times.

2. The patient, standing erect, opens the hands, extending them as far back as possible, stretches out the arms and carries them high above his head and back as far as possible after the fashion of flying. This should be repeated twenty times, the patient holding the head back and looking at the ceiling.

3. The patient should swing a light pair of Indian clubs around full length, each one about twenty times.

4. The patient puts the hands flat on the table, places a weight of about half a pound on the fingers and raises it up ten times with each hand.

5. To stop the tremor, the patient should carry a rubber ball in the hand. By gradually working his hand on the ball he can stop the tremor for considerable periods.

6. Writing and drawing lines and figures should be introduced into his exercise.

7. Fatigue in his exercise must under all circumstances be avoided.

8. After exercise a short but very hot bath, followed by rubbing, is very beneficial.

Anal Fissure.

For anal fissure the following is recommended by *Med. News:*

℞.	Sulphuris loti	ʒvi	24
	Potass. bitartratis	ʒii	8
	Pulv. sennæ	ʒi	4

M. Ft. cachetæ No. xii. Sig.: One at night as a laxative.

To relieve the pain and to promote healing the following may be used:

℞.	Iodoformi	ʒi	4	
	Acidi carbolici.	gr. xx	1	30
	Petrolati	℥i	30	

M. Sig.: Apply once daily.

Chronic Eczema.

The following combinations are recommended by *Med. Record* in the treatment of chronic eczema:

℞.	Sulphuris	ʒiiss	10
	Spts. vini rect.	℥i	30
	Glycerini	ʒi	4

M. Sig.: Shake well and paint on the affected areas; or:

℞.	Sulphuris precip.	ʒiiss	10
	Saponis viridis	ʒss	2
	Olei cadini	ʒi	4
	Ung. zinci oxidi	℥i	30

M. Ft. unguentum. Sig.: Apply locally.

℞.	Chrysarobini Acidi salicylici, āā	ʒiv	15
	Sulph. precip. Saponis viridis Olei cadini. āā	ʒv	20
	Lanolini	ʒiiss	10

M. Ft. unguentum. Sig.: Apply locally.

Seborrheic Eczema.

Otto Maier, in *Postgraduate*, [illegible]commends in the seborrheic form of eczema that a

strength, be applied for one day to soften the crusts. This is to be followed by an ointment of:

℞.	Acidi salicylici	gr. xv	1
	Zinci oxidi Pulv. amyli, āā	ʒi	4
	Lanolini q. s. ad	℥i	30

M. Ft. unguentum. Sig.: Apply locally with a mask.

This dressing must be changed every third day. The diet must be regulated and calomel given twice a week in two-grain doses (.12). The bowels must be irrigated with sterile water once a day.

Medicolegal.

Liability for Operating Without Previous Consent.—The Appellate Court of Illinois, First District, says, in Pratt vs. Davis, an action brought by the latter party, that it thinks that both courts, the lower one and it, recognize adequately the great obligations to medicine and to surgical skill under which all civilized communities lie, and would be far from upholding any ungrateful attempt to make liable "for a failure to cure" one who "free from any imputation of malice, wantonness, recklessness, lack of skill, or negligence," had used "whatever of skill or learning and of material equipment were at his disposal," for the relief of the complaining party. Had this case, in the opinion of the court below, been such an attempt, there would have been no judgment for the plaintiff; if it were so in the opinion of this court, the judgment would be annulled. But great as are the obligations to which this court has alluded, they do not confer on the physician or surgeon unlimited power to use his own discretion in the surgical or medical treatment of patients who, suffering from some bodily ailment, come to him for advice and assistance. Undoubtedly an implied license "to have," as the defendant's argument phrased it, "the proper remedial means brought to bear" often exists. The patient may, by his whole course of conduct, without the use of any express language giving consent, evidently place his body at the entire disposal of the surgeon or physician whom he consults. And for a soldier to go into battle with a knowledge beforehand that surgeons attached to the army are to have charge of the wounded, might perhaps be considered an implied license for such operations as the surgeon afterwards. in good faith, performed. Perhaps, too, the various cases which might be supposed of sudden and critical emergency, in which the surgeon would be held justified in a major or capital operation without express consent of the patient, might be referred to the same principle of an implied license. But the broad statement put forth by the defendant as a correct proposition of law, that "when a patient places herself in the care of a surgeon for treatment without instructions or limitations" (it is to be presumed that this means express limitations) "on his authority, she thereby in law consents that he may perform such operation as, in his best judgment, is proper and essential to her welfare," is not one to which this court can give assent. It does not hold, again to quote defendant's counsel, that there is "a universal acquiescence of lay and professional minds in the principle that the employment of a physician or surgeon gives him implied license to do whatever, in the exercise of his judgment, may be necessary." On the contrary, under a free government at least, the free citizen's first and greatest right, which underlies all others—the right to the inviolability of his person, in other words, the right to himself—is the subject of universal acquiescence, and this right necessarily forbids a surgeon or physician, however skillful or eminent, who has been asked to examine, diagnose, advise and prescribe (which were at least necessary first steps in treatment and care), to violate, without permission, the bodily integrity of his patient by a major or capital operation, placing him under an anesthetic for that purpose, and operating on him without his consent or knowledge. 'Counsel asserted that not a case can be found in the English or American reports where a surgeon has been held liable for performing an operation without the consent of the patient. This is, perhaps, true. This court has not been able, in its examination, to find such a one, but it by no means follows that the liability does not exist. It would rather indicate that, obedient to the law and the code of professional ethics as well, surgeons have abstained from actions from which the liability would accrue, or at least had not carried the contention that it does not exist in the courts of last resort, It is this court's opinion, except in cases where the consent of the patient is expressed or is implied by circumstances and occasions other than a mere general retainer for medical examination and treatment, and except also where there is a superior authority which can legally and rightfully dispose of the person of the patient, and which gives consent, a surgeon has no right to violate the person of the patient by a serious major operation, or one removing an important part of the body. Illustrations of such superior authority as the court alludes to can be found in the control which the court takes of persons under sentence for crime, the power which is vested in parents over minor children of tender age, and the authority given to legally constituted guardians of the person of those who are insane or imbecile. In a more restricted form, it may be said to exist in the marriage relation, which makes the husband the head of the family. This last authority is not, however, supreme in the matter of surgical operations on the person, and this is really the gist of the decisions in McClallan vs. Adams, 19 Pickering. 333, and State vs. Housekeeper, 70 Maryland, 162, which were urged in argument as showing that the consent of the husband of the plaintiff was not necessary in the case at bar. These decisions are not authority for the proposition that when a wife is herself incompetent from mental condition intelligently to give or to withhold her consent, that the husband's consent is unnecessary, but for the very different proposition that where the wife, competent mentally to decide, assents and desires a dangerous operation, the surgeon is justified in performing it (if it be in his judgment a proper one) without the further consent of the husband. In this case, the plaintiff, who was about forty years old, had been afflicted with epilepsy for many years, ever since she was a young woman. The defendant seemingly considered the fact that she had epilepsy and wanted to recover from it as proving an implied acquiescence in anything he might choose to execute in the way of surgery, and as a sufficient justification for assuming her consent to a major operation, of the necessity or likelihood of which he did not inform her. She went to a hospital under his management, and the next day he performed the operation on her which he spoke of "as appearing on the surface" as necessary—the principal object apparently being to treat a laceration of the womb. She returned to the hospital again, when a hysterectomy was performed, consisting in the removal of the ovaries and uterus from her body. That the consent of the patient herself to such an operation as was performed in this case was necessary if she be in a free condition and in such mental health as implied capacity to decide, the court says that it does not believe has been denied by any court. And, in view of the testimony, both of the plaintiff and the defendant, the court says that the existence of any consent, express or implied, on the part of the plaintiff personally must be eliminated from consideration. Furthermore, the court is of the opinion that the preponderance of the evidence with regard to the husband's consent, was that it was not given for the performance of this major operation. Its conclusion is, therefore, that whether the evidence were to be considered as showing the plaintiff sane or insane at the time of the operation, she would in each case be entitled to recover damages. Without intending to lay down herein a rule to be quoted in subsequent cases, where, perhaps, it might seem as dangerous to recognize in a husband an unlimited right to expose, without her consent, the body of an insane wife to the surgeon's knife, as it evidently is in the eyes of the legislature of Illinois to allow a husband the right to restrain such a wife of her liberty without a judicial inquiry into her insanity, the court says that it might assume, for the purposes of the present case, that as the husband is the head of the family and naturally the protector and guardian of an insane wife's interests, consent by him, implied or expressed, would justify the defendant and avoid the liability charged against him in this action. But it was obvious that to make good this defense, after it had been admitted or had otherwise appeared that no consent of the patient herself could be shown, the defendant must show two things affirmatively: first, that the patient was not mentally in a condition to be in control of her own body; and, secondly, that her husband consented to the operation. On the defendant, as to these matters, lay the burden of proof. The question as to damages resolved itself into this: What damage should be assessed against the defendant for the unauthorized act in removing the uterus of the plaintiff? The law infers damages when any trespass on the person of another is committed. It infers bodily pain and suffering from such an act, and allows damages for them, however difficult they may be of ascertainment or apportionment. Moreover, the court thinks that this was a proper case for the assessment of exemplary damages, and that the amount given, $3,000, was a moderate and judicious one under all the circumstances shown. It would not do to say that neither malice, violence nor recklessness was shown on the part of the defendant, because there was no claim that he was actuated by dislike, hatred or desire to ultimately injure the patient in what he did. He probably thought that the operation would do no ultimate harm and might do good. If the act was an unauthorized trespass on the body of the plaintiff—if it was an act, in other words, in the mutilation of her body, which he knew, or was bound in the eye of the law to know, he had no legal right to do—the absence of such a morally evil intention as before indicated did not relieve it from the imputation of malice in its legal sense. It was willful, and the deliberate intention to commit an act which the defendant was bound in the eye of the law to know was illegal, was there. That made malice in a legal sense. It was violent, oppressive, wanton and reckless in the same sense.

Insanity and Testamentary Capacity.—The Supreme Court of the United States holds, in the will case of Keely vs. Moore, that an application of another party for the admission of the maker of a will to an insane asylum, and the certificate of two physicians as to his insanity, were properly excluded, not only because they were unsworn testimony, but because they were given in a different proceeding and on a different issue. It says that the testator may have been insane to the extent of being dangerous if set at liberty, and yet may have had sufficient mental capacity to make a will, to enter into contracts, transact business, and to be a witness. Besides this, it says, these certificates were both dated December 14, more than two months before the will was made, and were by no means inconsistent with other testimony that the party was released from the asylum as cured February 1, following, and that three weeks after that, when he executed the will, he appeared to be of sound and disposing mind and memory. In addition to the proof of his commitment to the asylum, and of his undoubted insanity prior and for some time subsequent thereto, there was slight evidence of insane acts during the month of February, though there was no opinion expressed by any one that he was incapable of making a valid deed or contract. The whole testimony regarding his insanity was duly submitted to the jury, who were instructed that if they found his insanity to be permanent in its nature and character, the presumptions were that it would continue, and the burden was on the defendant to satisfy the jury by a preponderance of testimony that the testator was, at the time of executing the will, of sound mind. The Supreme Court says that there was no error in this instruction, and it affirms a judgment sustaining the validity of the will.

Diseased Condition of Arteries and Accident.—The Supreme Court of Iowa says that in the case of Binder vs. National Masonic Accident Association there was a contract of insurance which contained the stipulation that there should be no liability for a disability happening directly or indirectly, wholly or in part, because of or resulting in or from any disease or bodily infirmity. The jury were instructed that if the insured sustained a fall, and if the bursting of an artery was caused thereby, a recovery of benefits might be had, even though it was found that the artery was in a weakened condition by reason of disease. But the Supreme Court thinks this instruction could not be sustained because it entirely ignored the stipulation stated. It says that if it was true, as the jury might have found under the evidence, that the diseased conditions of the arteries aggravated the effect of the accident, if there was one, and contributed to the disability occasioned thereby, then, under the express terms of the contract, there was no liability on the part of the association. The testimony clearly showed a diseased condition of the arteries at the time of the insured's death, and physicians of skill and reputation testified that the condition probably existed at and prior to the time of the alleged accident; that this condition greatly weakened the arteries; and that because thereof a blow "or some other exciting cause might produce apoplexy or paralysis, when in a healthy condition these results would not follow." This court knows of no better evidence of the probable effect of disease than the testimony of skilled medical men, and thinks the testimony in this case competent, and its weight for the jury alone.

Construction of Health Insurance Policy.—The Supreme Judicial Court of Maine says, in the case of Dunning vs. Massachusetts Mutual Accident Association, that in a policy of insurance against accident and disease the conditions of the policy respecting "indemnity for sickness" were as follows: "A disability resulting from sickness or disease in order to constitute a claim, must be continuous, complete and total, requiring absolute and necessary confinement to the house (except as provided under benefit No. 15), and unless the period of total disability under the health provisions shall continue for four or more weeks, no claim shall be allowed for the first seven days' disability, and the sickness or disease shall be such as shall, independently of all other causes, continuously and wholly disable and prevent the insured from attending to any business or duties pertaining to his occupation, profession or other remunerative employment." "Absolute and necessary confinement to the house," the court holds, is made by such a contract an indispensable criterion of the disability which will entitle the insured to the indemnity, and hence a condition precedent to the right to recover. So, in regard to "convalescent indemnity," "if the insured has been confined to the house for seven consecutive days and is thereafter permitted to leave the house by the physician in charge," one-half of the indemnity is recoverable. The company had a right to frame its health policy on the assumption that confinement to the house would be found so tedious and irksome that few would submit to it except under compulsion of a severe illness. The company had a right to make "absolute and necessary confinement to the house" a conclusive test of the disability, and a condition precedent to the right of recovery. It had inserted this condition in the contract in plain and unambiguous language, and no principle of public policy was thereby contravened. To hold that this requirement was not a condition precedent would be to defeat the obvious intention disclosed by the terms employed, and to substitute for the plaintiff's policy a contract not made by the parties.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

February 25.

1 *Relation of Pathology to Other Sciences. J. Orth, Berlin.
2 *Nephroureterectomy for Tuberculous Disease with a Description of a New Technic. Edward Reynolds, Boston.
3 Society of Sanitary and Moral Prophylaxis; Its Object and Aims. Prince A. Morrow, New York City.
4 *Abuse of Purgation Before and After Operation. I. S. Stone, Washington, D. C.
5 *Cystoscopy. Henry D. Furniss, New York City.
6 Suspected Embolism of the Superior Mesenteric Artery. James A. Nydegger, Stapleton, N. Y.

1. **Pathology and Other Sciences.**—Orth directs attention to the close relationship existing between pathology and the natural sciences. Although pathology necessarily must be in uninterrupted relation to medical art, still it remains first of all an independent physical science which stands on an equal plane with normal anatomy, physiology and physiologic chemistry, and, together with etiology, these form the scientific basis for practical medicine. Orth is of the opinion that the greatest progress of pathology in the immediate future will be along the lines of chemistry.

2. **Nephroureterectomy; A New Technic.**—The indiscriminate application of nephrectomy to all cases of renal tuberculosis is deprecated by Reyonlds as likely in the long run to do more harm than good. He separates his cases broadly into two classes: First, the patients in which the course of the disease is rapid and the constitutional failure marked, i. e., the profoundly tuberculous. These patients should take such chance as they may have under open-air hygiene, because in them operation is but rarely indicated, and then not with the idea of radical cure, but only for the relief of otherwise irremediable suffering of extreme degree. Second, the patients in whom the progress of the disease has been slow, whose constitutional condition is fairly good, and in whom the tuberculosis is not only limited to the urinary tract, but can be conclusively demonstrated to be limited to one kidney, its ureter and perhaps the bladder. In this class of cases Reynolds believes that by a combination of nephrectomy and constitutional care, a radical cure may usually be expected. An operation should not be performed unless an exhaustive physical examination limits the tuberculosis to the urinary tract, nor until a ureteral catheterization has demonstrated the secretion of tuberculous pus from the kidney, and the excretion of a normal urine, free from pus and containing a normal amount of the urinary solids, from the other kidney. Of 8 cases selected as suitable for operation, 2 were exceptional cases of generalized tuberculosis which demanded operation; 2 were subjected to nephrectomy, 1 to nephrectomy with a subsequent ureterectomy, and 3 to nephroureterectomy. The first two patients were distinctly benefited by the operation. Of the remaining 6, 1 patient suffered from a prolongation of symptoms, probably of vesical cause, but was reported in improved health at the end of four years. Four patients are in perfect health after intervals varying from eighteen months to seven years, although 1 has had a subsequent tuberculous abscess, but is again convalescent. After an experience of 9 nephrectomies done for tuberculous and other suppurative disease, without extirpation of the ureter, or with extirpation of only its upper portions, and of 7 complete nephroureterectomies, Reynolds is convinced that the incomplete operations show a longer period of persistence of symptoms, as compared with the complete cases, while in 2 of the 9 incomplete operations he has been obliged to perform a subsequent ureterectomy. He gives a detailed description of a method he employs in this operation and reports 7 cases, without a mortality.

4.—See abstract in The Journal of January 7, page 59.

5. **Cystoscopy.**—Furniss discusses the value of cystoscopy in the diagnosis of diseases of the bladder, ureters, the kidneys and their pelves.

Medical Record, New York.

February 25.

7 *Loss of Sight from Diseases of the Eye (Amblyopia ex Anopsia). D. B. St. John Roosa, New York.
8 Review of the Recent Literature on the Relation of Human and Bovine Tuberculosis. David Bovaird, Jr., New York.
9 *Advantages of Performing Capital Operations in Selected Cases Without Anesthesia. J. J. Buchanan, Pittsburg.
10 *Four Cases of Chancre of the Lip. Charles M. Williams, New York.
11 *Unusual Case of Pelvic Abscess. W. H. Coe, Auburn, N. Y.
12 *Ear Complications of Scarlet Fever, and Their Treatment. Herman Jarecky, New York.
13 *Epileptic Criminal; with Report of Two Cases. T. H. Evans, Philadelphia.
14 *Higher Education a Cause of Physical Decay in Women. F. W. Van Dyke, Grant's Pass, Ore.

7. **Amblyopia Ex Anopsia.**—Roosa expresses himself as favoring the limitation of this term to those cases where use of the eye has been given up because it involves double vision, the maculæ luteæ being no longer in exactly corresponding positions, as is the case in any form of strabismus. He describes a case illustrating the recovery of sight by a man more than 40 years old after having had an amblyopic eye since his early youth. The case also shows the practicability and importance of the treatment advocated by Javal.

9.—See abstract in The Journal, Oct. 29, 1904, page 1332.

10. **Chancre of the Lip.**—Williams reports four cases of this kind. In the first case it was absolutely impossible to discover the source of contagion. In the remaining cases the mode of infection was probably by kissing, though in the third and fourth a pipe may have been the carrier of the contagion. The location of the initial lesion in the first case was somewhat unusual, being on the upper lip.

11. **Pelvic Abscess.**—The symptoms in the fatal case of septicemia described by Coe began ten days before a miscarriage. At the autopsy the right broad ligament was found to be somewhat thickened and when its folds were severed a little pus oozed out. Inserting the finger in the opening, the whole was followed outward and backward to the wall of the pelvis where, extraperitoneally, was found a considerable cavity lying against the bare muscles and tendons. This contained a greenish, slimy pus, and extended backward as far as the sacrum Examination of the interior of the uterus showed nothing except a few drops of yellow pus in the cervix. Coe believes that the original source of the infection was from the uterus

12. **Ear Complications of Scarlet Fever.**—In considering the etiology of these complications Jarecky concludes that they are due to one of the following causes: 1, Toxins of the disease; 2, extension from the throat, and 3, general weakness He directs attention to the necessity of removing hypertrophied tonsils, adenoid vegetations and nasal obstructions in children so that when subjected to the strain of scarlet fever they may avoid the principal method of ear infection. Repeated examinations of the ear should be made on account of the uncertainty of the symptoms. For the swelling, itching etc., of the external ear, a mild dusting powder should be used. In middle ear disease the pain is best treated with hot water irrigations of the canal and a hot-water bag applied to the ear. The local abstraction of blood may control the trouble, and watery solutions of cocain, atropin or tincture of opium dropped into the canal occasionally give relief. The nose and throat, and especially the eustachian tube, should be kept bare of mucus to allow drainage. A 10 to 12 per cent. solution of carbolic acid in glycerin applied directly to the drum membrane frequently gives satisfactory results. Owing to the rapidity with which destruction of aural tissue and extension of infection take place, a paracentesis should be performed as soon as the tympanum shows signs of exudation and the membrane of bulging. There must be sufficient drainage, and frequent irrigation with 1 to 5,000 bichlorid solution must be carried out. Toward the end of the acute stage inflation with the Politzer bag or eustachian catheter helps to get rid of pus and prevents adhesions. Other complications should receive appropriate treatment. If the mastoid is involved Jarecky applies an icebag or the Leiter coil for twenty-four hours, with rest in bed, light diet, cathartics, and frequent irrigation of the canal. There must be a free opening in the tympanum. If the symptoms continue, he urges operation. Opiates, leeching or iodin applications over the mastoid are contraindicated, as they prevent proper examination for tenderness.

13. **Epileptic Criminals.**—Evans cites two cases; one that of an epileptic who committed a murder, and the other that of a woman belonging to the borderland epileptic type who, in a fit of jealousy, attempted to kill her lover. Having these and other cases in mind, Evans formulates the following conclusions: 1. The essence of crime is in the intention, and the ability not so to intend. 2. No punishment is adequate to any crime; restraint not only after the crime has been committed, but effort to hinder any such deed is always preferable. 3. The victims of epileptics ought to have legal ground for suit against the community as well as against those in charge of the epileptic. 4. Reservations ought to be established in which degenerates and the morally irresponsible could be colonized and treated, allowing all possible freedom of initiative for useful and safe pursuits therein. 5. Marriage of neurotics should be regulated. 6. All epileptics are to be viewed with suspicion. Many cases of psychic erraticism, cranks and mistaken reformers are to be taken as examples of epileptic psychic equivalents. The major forms of epilepsy may not prove so dangerous to the community as these veiled manifestations.

14. **Higher Education in Women.**—That higher education is not without its value, and that a woman with talent or genius should have it developed to the fullest extent, meets with Van Dyke's approbation, but he severely criticises the effort constantly being made to force a woman with average ability to keep pace with one possessing well-defined talent. Such efforts are predestined to failure and invariably are productive of deplorable and disastrous results. He advises that the studies of schools and colleges be revised to suit the majority, and that no girl should be urged to go beyond her capacity to learn with a moderate amount of application.

New York Medical Journal.

February 25.

15 Resection of Twenty-three Inches of Grangrenous Intestine Due to a Volvulus Following a Second Attack of Appendicitis. Report of 33 Cases of Intestinal Obstruction Caused by Unoperated On Appendicitis. (To be concluded.) Clarence A. McWilliams, New York.
16 Myocardial Degeneration. Albert E. Roussel, Philadelphia.
17 Cotarnine Hydrochlorid in Uterine Bleeding. H. J. Boldt, New York.
18 *Brief Review of the Treatment of Prepuerperal and Puerperal Hemorrhages. Charles J. C. O. Hastings, Toronto.
19 Intestinal Perforation in Typhoid Fever. Hugh M. Taylor, Richmond, Va.
20 Lumbar Puncture; Its Value on Diagnosis and Treatment. Edgar P. Cook, Mendota, Ill.
21 Electricity in Otology. J. J. Richardson, Washington, D. C.
22 Retrodisplacement of the Uterus. Helen Hughes, Mankato, Minn.

18. **Prepuerperal and Puerperal Hemorrhages.**—In order to cope satisfactorily with these hemorrhages every practitioner says Hastings, must have decided positively beforehand on his line of action in such cases, and then make the best use of every minute. The successful handling of these cases depends largely on the ability of the physician to classify them properly, as no one method of treatment can be suggested that would be suitable for all cases. If the child is viable, or if a severe hemorrhage has occurred, labor should be induced at once. If the child is not viable and the hemorrhage has been slight, the physician is justified in temporizing, providing the patient can be watched carefully. Hastings expresses the opinion that no condition of the patient in placenta previa ever justifies rapid dilatation or rapid emptying of the uterus. If the child is viable, or if a severe hemorrhage has occurred, the patient a primipara and the os rigid, draw down the cervix and pack the cervix and vagina with iodoform gauze. If properly done this will usually stimulate uterine contraction and satisfactorily control the hemorrhage. In a few hours, in the vast majority of cases, the os will be sufficiently dilated to admit of digital dilatation. If the hemorrhages are not severe, pains strong and regular, the head or buttocks engaged, watch and wait. If the hemorrhage increases, rupture the membranes. If this is not effectual bring down a foot, but do it gently, so as to disturb the placenta as little as possible, and to produce the least possible shock to the mother. If the hemorrhage is extensive or severe, with the cervix fairly well dilated, version should be performed, the membranes ruptured and a foot brought down. If the patient is not exsanguinated or suffering from shock, use gentle, intermittent traction not exceeding two pounds. Should, however, either of the conditions mentioned exist, restoratives should be used at once, such as normal saline solution, morphin, strychnin, digitalin, or an

ether or a whisky hypodermic. After delivery the placenta and membranes should be removed at once, and if hemorrhage continues, draw down the uterus, pack the entire uterine cavity, cervix and vagina with sterilized gauze. Hastings says the hydrostatic and pneumatic methods of dilatation are practically limited to hospital practice. The same can be said of cesarean section. Bossi's dilator and every other metal dilator he condemns as being most dangerous. No method of treatment should be adopted that will diminish the mother's chances in the slightest degree. Hastings also condemns the practice of relinquishing old and tried methods for the sake of experimenting with something new. The treatment of postpartum hemorrhage he considers largely preventive. If, however, it does occur, and the placenta is still in the uterine cavity, with extensive hemorrhage and with a poorly contracting uterus, remove the placenta with the gloved hand, allowing the hand to remain in the uterine cavity until expelled by the contractions of the uterus. If the uterus is empty when the hemorrhage occurs, give a hot douche at 120 F., or the same with a 3 per cent. acetic acid, and then pack with sterile gauze, drawing down the uterus, as for vaginal hysterectomy, to do so.

Boston Medical and Surgical Journal.

February 23.

23 Eyestrain as a Factor in Functional Nervous Disabilities. Myles Standish, Boston.
24 Eyestrain as a Factor to Be Considered in Children Backward in Their Studies. Allen Greenwood, Boston.
25 Eyestrain Considered as a Factor in the Production of Lateral Curvature of the Spine. Henry W. Kilburn, Boston.
26 Eyestrain and Reflex Phenomena of Nasal Origin. Henry H. Haskell, Boston.
27 In What Cases Should Eyestrain Be Suspected? Edwin E. Jack, Boston.
28 Difficulties Encountered in the Prescription of Glasses. Fred M. Spalding, Boston.

Medical News, New York.

February 25.

29 *Expectant Treatment of Appendicitis. An Excursion Into the Field Between Surgery and Medicine. A. C. Bernays, St. Louis.
30 Observations on the Morphology and Classification of the Mycobacterium (Bacillus) Tuberculosis. Charles F. Craig, San Francisco.
31 *Clinical Studies in Ureteric Meatoscopy. Walter C. Klotz, New York.
32 Sprains of the Knee and Ankle Joints. J. T. Wilson, Sherman, Texas.
33 *Syphilis of the Lung Simulating Phthisis. William E. Hughes and Robert N. Willson, Philadelphia.

29. **Expectant Treatment of Appendicitis.**—Bernays' views on this subject are exactly contrary to some that have recently been very extensively circulated, and which, he says, are intended to influence the general practitioner in his method of treatment of appendicitis cases which are not deemed suitable for operation. Bernays advises that in all cases of acute appendicitis the administration of food should be very scant, but that cathartics and large enemata of warm water should be given regularly without regard to the treatment contemplated. Of course, he continues, the ideal method of treatment is the operative method carried out in the beginning of the attack, but, if for some cause, this time has been allowed to pass, the expectant treatment will often give better results than the operative. He has never seen escape of intestinal contents caused by the cathartic, either into the abscess cavity or the peritoneal cavity. Rest in bed, with large, moist, warm antiseptic poultices over the abdomen is also recommended. He believes that the regular use of cathartics will materially decrease the mortality of acute appendicitis, no matter by what other methods they are treated afterward.

31. **Ureteric Meatoscopy.**—Valuable information can often be obtained, says Klotz, by cystoscopic inspection of the ureteric orifices. With a view to determining how far these changes could be relied on as a means of diagnosis in diseases of the kidney, Klotz has carefully noted the cystoscopic findings in cases of suspected renal disease. The first group comprises 12 cases of nephrolithiasis. In 4 out of 5 cases of nephrolithiasis it was noted that the ureteric orifice on the diseased side was surrounded by a reddened and edematous mucous membrane, almost obliterating the ureteral opening, which was situated at the summit of the tumor. In 1 case no such change was noted and the calculus was found outside the wall of the ureter. In 2 cases in which changes were noted in the ureteric orifice and in which no stone was found at operation, Klotz suggests that it is possible that the stone was passed either just before cystoscopy or between the time of cystoscopy and operation. In the remaining 6 confirmed cases of renal disease changes were found in the ureteric orifice in 5. In the case in which ureteric meatoscopy was negative, ureteral catheterization was of distinct service. He is of the opinion that although ureteric meatoscopy can not replace ureteral catheterization in all cases, it may frequently furnish additional information and be of great service in those cases where ureteral catheterization can not be carried out. Before ureteric meatoscopy can be placed on an absolutely safe clinical basis it is necessary to decide what constitutes a normal and what an abnormal ureteric orifice, the causes of any pathologic changes and whether the absence of change in the ureteric orifice is of any value in making a negative diagnosis.

33. **Pulmonary Syphilis Simulating Phthisis.**—Hughes and Willson report the case of a man, aged 32, family and personal history negative, who complained of cough and profuse expectoration which persisted after a severe cold. Within four weeks of the onset of his trouble he began to expectorate blood, at first occasional small streaks in the sputum, but gradually increasing in quantity. The patient appeared well nourished and felt well in every way except for his cough. Physical examination was negative except so far as it concerned the chest. The right chest seemed more prominent than normal, especially over the lower portion. The expansion was relatively impaired over this area; percussion resonance was also impaired over the entire right lower lobe, especially posteriorly. Tactile fremitus was slightly increased. Fine crackling râles and a scraping friction sound were heard on deep inspiration just below the upper border of the right lower lobe. Above and to the outside of this area skodiac tympany was easily obtained. The apex was negative and the left lung was normal except for poor expansion. No evidences of a syphilitic infection could be found. The temperature varied between 97 and 100. The pulse averaged 90; the respirations gradually fell from 30 to normal. The urine was normal. There were no night sweats, little loss of weight; the appetite was good. No tubercle bacilli could be detected at any time in the sputum. Aspiration of the affected lung gave a syringeful of dark red blood, floating in which were large flakes of lymph, evidently from the surface of the pleura. Microscopic examination of the fluid was negative. The diagnosis hovered between incipient pulmonary disease, tubercular phthisis and syphilis. Finally the patient was placed on potassium iodid, 1 dram three times a day, and within twenty-four hours the expectoration diminished and there was less blood. After three days the sputum contained no blood and the cough had largely disappeared. Within four days more there was no cough, the sputum was mucopurulent, but in slight quantity, and the patient felt perfectly well. On therapeutic grounds, therefore, a diagnosis of pulmonary syphilis was made.

Lancet-Clinic, Cincinnati.

February 25.

34 Consumption and Its Borderland—Public and Professional Concern. Paul Paquin, Asheville, N. C.
35 *Pathologic Changes Resulting from Prostatic Enlargement. Charles E. Barnett, Fort Wayne, Ind.
36 Case of Bilateral Tic Douloureux Treated by Removal of the Right Gasserion Ganglion and Excision of the Left Inferior Dental Nerve. W. O. Bullock, Lexington, Ky.
37 Climatic Advantages. Charles F. Beeson, Roswell, N. M.

35.—See abstract in The Journal, Oct. 29, 1904, page 1326.

St. Louis Medical Review.

February 18.

37½ Examinations for Bacillus Tuberculosis. I. S. Wile, New York.
38 Nihilistic Surgeon and the Therapeutic Optimist. W. C. Abbott, Chicago.
38½ The Mutation Theory, Heterogenesis, Spontaneous Generation and the Evolution of Morbid Germs. Jonathan Wright, New York.

Illinois Medical Journal, Springfield.

February.

40 Cardiac and Renal Aspects of Pneumonia. A. R. Elliott, Chicago.
41 *J. B. Murphy's Technic for Abdominal Hysterectomy. J. N. Neff, Chicago.
42 *Simple Method for Gastroenterostomy, Ureteral and Intestinal Anastomosis. H. M. Hepperlin, Beatrice, Neb.

41. **Abdominal Hysterectomy.**—The technic for abdominal hysterectomy used by J. B. Murphy for the past two and a half years is described by Neff. The advantages of the method may be summed up as follows: 1. The tumor and uterus can be removed almost as readily and as rapidly as an ordinary ovarian cyst, the average time required for the entire operation being from fifteen to thirty minutes. Most of the time is consumed in covering the abraded surfaces with peritoneum. 2. The danger of injury to the ureters is reduced to the minimum by rolling, instead of cutting, the uterus out of the surrounding connective tissue, thus following the natural lines of separation. 3. There is practically no danger of secondary hemorrhage as each vessel is ligated separately. The various steps of the operation are described in detail *ad seriatum*.

42. **Gastroenterostomy, Ureteral and Intestinal Anastomosis.**—Hepperlen's method of intestinal anastomosis by means of a gelatin bobbin is given in The Journal, March 26, 1904, page 854. Since then he has also made use of this device in gastroenterostomies and in ureteral anastomoses. For the former he uses a bobbin that has a small flange molded on one end of it to hold it securely in the bowel. After taking an interrupted suture on either side of the openings in the bowel and stomach, he introduces the gelatin cylinder, ties the parts together with the sutures thus introduced, thereby attaching the bowel to the stomach, and then finishes the anastomosis just as in the case of an enterostomy. For ureteral work he uses a small cylinder of gelatin with an opening through the center, oval at each end. The cut ureter is caught with two stitches, passed through each end on opposite sides. These are used to assist in drawing the ureter over the gelatin cylinder, and then they are tied to hold them in place. The object in having the small opening through the cylinder is to allow the urine to pass through, so that there will be no stoppage in the canal before the gelatin absorbs. The operation is completed in the usual manner used for intestinal and stomach work. Hepperlen claims that by using this method the work can be accomplished in a shorter time, more securely, and with less shock and a lower mortality than by any other method.

Canada Lancet, Toronto.

February.

43 Myocardial Arterial and Valvular Disease. H. A. Hare, Philadelphia.
44 *Sarcomas Successfully Treated with X-rays. J. McMaster, Toronto.
45 Some Points in the Administration of Anesthetics. G. H. Carveth, Toronto.
46 Erysipelas Complicating Labor Successfully Treated by Antistreptococcic Serum. A. R. Hanks, Toronto.

44. **X-Rays in Sarcoma.**—McMaster reports five cases of sarcoma in which treatment with the *x*-ray proved entirely successful. The first patient, a boy of 14 years, had a large sarcoma of the right superior axilla. Fifteen vigorous applications, made in forty-two days, given both on the outside and through the mouth, caused a diminution in the size of the growth with a decided relief from pain. After the surgical removal of the entire bone and tumor half a dozen more treatments were given, and there is no sign of recurrence after three years. From the second patient, a round-celled sarcoma was removed from the region of the parotid gland. *X*-ray treatments were begun soon after the operation and fifty treatments were given. At first they were given three times a week, and after six weeks, twice a week. Over two years have elapsed since the operation was done and there is no sign of metastasis nor of recurrence. The third case was similar to the second. A tumor was removed from in front of the ear and on microscopic examination it was found to be a small-celled sarcoma. A new development resulted at the site of operation within a few months. After a dozen energetic treatments with the *x*-ray there was marked evidence of softening in the growth. Coley's toxins were used in conjunction with the *x*-rays and were pushed to the limit of tolerance. Except for a transient erythema, and the formation of an abscess, the case progressed favorably. McMasters says that the result was all that could be desired, and a cure is being hoped for with increasing confidence. The fourth patient had a large, hard swelling at the angle of the jaw, which extended down the neck to the clavicle and up behind the ear for about two inches. The case was considered inoperable. It was rayed for four months. In its upper part softening and suppuration took place and the growth melted away rapidly. About the third month of treatment the use of Coley's fluid was begun and continued for five weeks without result. The patient continued to improve and there is now, after about ten months, not the slightest evidence of anything ever having been wrong. The fifth patient, a young woman aged 21, had a small sarcoma removed from in front of the ear. It recurred and was again removed, only to return once more, growing more rapidly than before. The case is improving under *x*-ray treatment and McMasters promises a full report later. In none of these cases did autointoxication present any difficulty. In all of them *x*-ray irritation was difficult to produce, and, being produced, the patients reacted promptly. The patients tolerated large doses of radiation for a protracted period of time. McMasters considers the *x*-ray a valuable curative measure in the treatment of sarcoma.

Denver Medical Times.

February.

47 *Tubercular Peritonitis. C. H. Mayo, Rochester, Minn.
48 Hyperchlorhydria—Diet and Gastric Analysis. J. R. Arnell, Denver.
49 Normal Obstetrics. T. M. Burns, Denver.

47. **Tubercular Peritonitis.**—The incidents and pathology of this condition are discussed by Mayo. He has seen 4 cases of tubercular peritonitis in the upper abdomen which recovered after laparotomy with removal of the fluid, and in which the source of infection could not be located in the limited examination then made, although many adhesions were found about the region of the gall bladder, pylorus and duodenum. One was in a man, the other three were in women. The patients were all between 40 and 50 years of age. The failure of all methods in vogue for the treatment of this condition has led him always to search for the original lesion and to remove it, leaving the peritoneal condition to cure itself, and closing the abdomen without drainage. The abdominal conditions always point to the source of the disease by the congestion, increased matting of the miliary deposit or increase of general adhesions. Tuberculosis of the vulva, vagina and cervix is not a common disease, and tuberculosis of the uterus is uncommon during menstrual life, but is found before puberty and after the menopause. Tuberculosis of the tube is common and acts on the mucous membrane as a local lupus. He has found that the increased percentage of cases of tubercular peritonitis occurring in women is from tubal involvement, and even when the tube appears in fair condition; drying the peritoneum and closing the abdomen resulted in a primary cure, yet some patients later appeared with pelvic masses and a second laparotomy with the removal of caseating tuberculous tubes resulted in permanent recovery. If the general condition is such as to render operation extremely hazardous as well as futile, operation must be refused. In males Mayo makes the incision over the appendiceal region, while in women it is so arranged as to explore the pelvis. A tubercular appendix in an early stage, before miliary deposits appear, may at times be diagnosticated at operation by the large size of the glands of the mesenteriolum. Care must be employed not to open the bowel in separating plastic adhesions of the intestine. As a rule, it is best to keep close to the parietal or pelvic peritoneum, separating as few adhesions as possible in exposing the region affected. In some cases the tubal enlargement can be pierced and its entire contents of caseating débris and lupoid material removed, leaving the outer fibrous and peritoneal layers *in*

situ, then applying iodin or iodoform emulsion in glycerin to the diseased area, and closing the abdomen without drainage. The Mayos have made this complete operation on 26 cases of tubal origin with only 1 death. They have performed 59 operations for tubercular peritonitis by the older methods; 42 were cured, 15 improved, and 2 died. There were 58 operations for the removal of tubercular tubes, with 56 recoveries and 2 deaths; and 27 cases of tubercular appendicitis without a death.

American Practitioner and News, Louisville, Ky.

February.

50 Thrombosis Following Laparotomy. J. B. Richardson, Louisville.
51 *Care of the Throat in Pulmonary Tuberculosis. G. A. Robertson, Louisville.
52 Follicular Tonsillitis. S. P. Myer.

51. **The Nose and Throat in Phthisis.**—Robertson advises the removal of nasal spurs, septal ridges and hypertrophied turbinates; opening up the nostrils to make as much space in the nasal chambers as possible; the removal of adenoids, hypertrophied and diseased tonsils, and every other nasal or pharyngeal condition which may produce a lowered vitality and thus favor the development of tuberculosis. Those who have this disease should have their nasal and aural cavities thoroughly overhauled and cleared up. All atmospheric conditions that are deleterious to respiratory surfaces must be avoided. A constant inhalation of irritating particles is hard on the throat, making the lining membranes lax, congested, and susceptible to infections of all kinds. The larynx should be inspected carefully because in many cases tuberculous involvement can be avoided. Robertson does not advise local applications to the larynx, even in evident ulceration. He depends on cleansing sprays and simple alkaline washes; care of the voice; control of cough and a constant attitude of watchfulness to prevent involvement of these mucous membranes.

Northwestern Lancet, Minneapolis.

February 15.

53 *Indications for the Goiter Operation and Its Technic. G. Schwyzer, Minneapolis.
54 How May the Usefulness of the County Medical Society Be Extended? T. R. Watson, Zumbrota, Minn.

53. **Indications for Goiter Operations.**—Should we operate for an enlarged thyroid for cosmetic purposes, is the question which Schwyzer attempts to answer. While an operation will generally be conceded as proper in very unsightly, though otherwise harmless goiters, it remains entirely with the individual ability and cleanliness of the operator how far he will feel justified through his results to advise operation for lighter forms. The diffuse, soft hypertrophy of the thyroid met with in adolescent people, is a condition which is usually best not operated on, as treatment with iodin or thyroid extract gives good results. Schwyzer favors local anesthesia because there is less danger from asphyxiation. The patient must so lie on the operating table that the neck is easily accessible. A horizontal incision gives perfect cosmetic results. After the goiter is well laid bare, and one or both inner borders of the sternocleidomastoid muscles are freed from their fascia, it ought to be the operator's aim to dislocate the goiter on the surface of the neck as early as possible. The next step is the ligation of the inferior thyroid, which is best done at some distance from the trachea in order to avoid interference with the recurrent laryngeal nerve; the communicating arteries about the isthmus can be clamped and tied, together with the isthmus. Schwyzer says that it is wise to leave a portion of the posterior goiter capsule over the lateral portion of the trachea in order to keep the recurrent laryngeal nerve sheltered. In 23 cases, anesthesia was obtained with a 0.5 per cent. cocain solution; and in 14 cases, the operation was done under general anesthesia, ether being the anesthetic used. One death occurred in an exophthalmic goiter of extreme degree six hours after the operation under rapid increase of the symptoms of thyroid intoxication. The remaining 36 cases healed promptly without any wound infection. One case, operated on under general anesthesia, for reappearing goiter, left the hospital with a partial paralysis of the corresponding vocal cords. Another patient, operated on under cocain anesthesia, remained somewhat hoarse for a few weeks following the operation.

Archives of Pediatrics, New York.

February.

55 Clinical Features of Cerebrospinal Meningitis. F. Huber, New York.
56 *Epidemic of Vulvovaginitis Among Children. A. C. Cotton, Chicago.
57 *Diphtheria in Early Life. A. Seibert, New York.
58 *Heat Values and Food Values. H. P. Armsby, Philadelphia.
59 *Alkalies in Infant Feeding. T. S. Southworth, New York.

56. **Vulvovaginitis Among Children.**—The epidemic discussed by Cotton extended from August, 1902, to September, 1903. During this period 319 children were admitted to the hospital, exclusive of the maternity and scarlet fever annexes, the average age being 7 years and 2 months. There were 151 girls and 168 boys. The cases known to be infected numbered 19, only 1 of these being a male. The extremes of ages were six months and 16 years; between these there were 1 of eight months, 2 of 2 years, 7 of 3 years, 2 of 4 years, 3 of 6 years, 1 of 9½ years, and 1 of 10 years. The first discharge was from the urethra of a 2-year-old boy, under treatment for rectal fistula, 17 days after his first operation, during which interim he had been taken daily to the dressing room or clinic. Gonococci were next found in the vulvovaginal discharge of a typhoid patient, 2 days after admission and five days after the reported cure of the first case. These 2 patients appear to have furnished the infection for the entire epidemic. Six girls developed vulvovaginitis inside of 21 days; 3 were typhoids, and 3 were surgical cases; all were diapered and all had temperatures taken daily per rectum, with the ward thermometers. No new cases appeared for 54 days when a vaginal discharge was observed in an eight-months-old surgical case. Most of the patients were infected from the first two cases that occurred. The discharge yielded only to the more heroic forms of treatment, such as douching with strong antiseptic solutions, 10 per cent. protargol, every four to six hours, preceded by 1 to 2,000 permanganate of potassium solution, and some obstinate cases required additional packing of the vagina with gauze saturated with 2 per cent. solution of protargol. Of the 18 patients who showed the infection in the hospital, 10 were discharged cured, 2 died of intercurrent disorders and 6 were removed while still under treatment. Cotton urges that every hospital for children must be protected against infection from without by well-arranged detention wards, in which the newly-admitted patient may be subjected to the closest scrutiny for a period of at least fourteen days to determine his freedom from an acute infection. A complete hospital should also have properly located isolation wards to which patients may be removed on the first appearance of suspicious symptoms of an acute infection. A patient in the children's hospital showing gonorrhea should be promptly isolated and placed in charge of a special nurse. The interne or nurse, while treating a gonorrheal patient should be relieved from other duties in the children's wards. The same care by nurse and physician in sterilization is as necessary as would be observed in going from a child with any acute infection to a non-infected child. The efficiency of any isolation may be questioned which does not individualize strictly, not only in regard to the treatment, care and manipulation of the patient, but in the use of clothing, bed linen, feeding utensils, thermometers, douche pans, etc.

57. **Diphtheria in Early Life.**—Seibert reports cases of diphtheria occurring in very young children, the youngest being seven weeks old, and the oldest twenty-three months. He cautions against errors of diagnosis based on the negative report as to the presence of the Klebs-Loeffler bacillus in doubtful cases and urges the early administration of the serum whenever diphtheria is suspected.

58. **Heat Values and Food Values.**—According to Armsby the food value of a nutrient as a source of energy to the organism is not measured by the total energy which it can liberate as heat in the body, but by the part of this energy which is available to the organism for physiologic uses. The remainder of the

fuel value simply serves to increase the generation of heat in the body, a result which may be advantageous or the reverse, according to the surrounding conditions.

59. Alkalies in Infant Feeding.—The actions of alkalies and their indications in infant feeding are discussed by Southworth. A considerable amount of the alkali may prevent all stomach digestion, forcing the task of digestion on the intestine, which, while often useful for limited periods, must necessarily interfere with the development of the gastric functions so necessary for the normal stomach if it is to become fitted to digest the solid diet of the adult. By adding a moderate amount of alkali, the task laid on the stomach may be limited to one it is able to perform. The choice between these two measures, or the possible rejection of both, depends entirely on the type of case in hand. Milk diluted with plain water containing no alkali is promptly clotted in the stomach by the rennet ferment, and the clot is transformed into tougher masses when acid is secreted. Lime water added to milk checks the immediate action of rennet on the whole mass and makes the clotting more gradual, altering the form of the curd and allowing, possibly, of the passage of some unaltered milk into the intestine, but leaves no large amount of alkali behind to inhibit the stomach digestion. With bicarbonate of soda added to milk, the action of rennet, hydrochloric acid, and pepsin are all prevented by the greater amount of antacid present until this is finally neutralized. In the meantime, portions of the milk are not liable to get beyond the fluid state and continue to escape into the intestine. This reduces materially the burden of digestion laid on the stomach or, if the alkalinity persists a sufficient time, relieves it entirely, the labor falling on the intestine. In the young infant the stomach is just beginning its functions, and the earliest secretion which acts on the milk is rennet. Hence, it is not difficult to understand the clinical effects of adding 10 per cent. lime water or 2 grains of bicarbonate of soda to the ounce, to the food of very young infants. The food is weak in that the proportion of milk is small. The milk is decidedly alkaline so that the rennet ferment will not act and the effect is to promote rapid emptying of the stomach, for whereas curded milk tends to be retained by the stomach, fluid milk tends to pass into the intestine. This assists in tiding the infant over a period of undeveloped and difficult gastric digestion, and as later the alkali is reduced, directly from 10 per cent. to 5 per cent. or from 2 grains to 1 grain to the ounce, and also as the amount of alkali relative to the milk is indirectly increased by augmenting the amount of milk in the mixture, the effect of the alkali is gradually lessened. The effect of adding alkalies to the food seems, then, to be that of influencing the place and type of the digestion of the food, and the problems which must be worked out in the near future will be to determine the proper kinds of alkali and the quantity of such alkali to be added if we desire to produce certain specific results; and also to determine more accurately the indications for their use or non-use in different types of cases.

American Journal of Orthopedic Surgery, Philadelphia.

January.

60 Some Remarks on the Treatment and After-treatment of Congenital Dislocations of the Hip. Adolf Lorenz, Vienna.
61 Ultimate Results of My Bloodless Reposition of Congenital Dislocation of the Hip. A. Hoffa, Berlin.
62 *Argument Concerning the Method of Treatment of Congenital Dislocation of the Hip. H. M. Sherman, San Francisco.
63 A Case of Double Congenital Supracotyloid Dislocation of the Hips with Cross-legged Progression. H. L. Taylor, New York City.
64 Disadvantages of the Frog Position in Reduced Congenitally Dislocated Femur. E. H. Bradford, Boston.
65 Prof. Lorenz's Operation for the Reduction of Congenital Displacement of the Hips. E. N. Smith, London.
66 A New Method of Recording Rotation in Scoliosis. R. T. Taylor, Baltimore.
67 A Simple and Rapid Method of Recording the Lateral Deviation of the Spinous Processes in Scoliosis. A. H. Freiberg, Cincinnati.
68 Study of the Treatment of Scoliosis Based on Anatomic, Pathologic and Mechanical Findings. R. T. Taylor, Baltimore.
69 Treatment of Club foot. Are the More Extensive Cutting Operations Necessary? B. E. McKenzie, Toronto.

62.—This article appeared in The Journal, Jan. 7, 1905, p. 31.

Quarterly Journal of Inebriety, Hartford, Conn.

January.

70 Scientific Aspects of Moderate Drinking. Francis G. Benedict.
71 Alcohol as a Factor in Rendering Mothers Incapable of Nursing Their Children. C. W. Stewart, Battle Creek, Mich.
72 The Medical Profession and the Use and Abuse of Alcohol. T. N. Kelynack.
73 Dipsomania and Inebriety. William Lee Howard, Baltimore.

Interstate Medical Journal, St. Louis.

February.

74 Introduction to the Semeiology of Diseases of the Nervous System—Symptoms Which Cannot Be Induced by the Will and Their Medicolegal Importance—a Lecture Delivered at l'Hôpital de La Pitie. J. Babinski, Paris.
75 Case of Sepsis Post-Abortum. Ernest Jonas, St. Louis.
76 Esophageal Stricture. John C. Morfit, St. Louis.
77 The Silver Fork Deformity. Nathaniel Allison, St. Louis.

Pacific Medical Journal, San Francisco.

February.

78 Notes on Typhoid Fever. R. J. Smith, Smithfield, Utah.
79 The Egg. Winslow Anderson, San Francisco.

Virginia Medical Semi-Monthly, Richmond.

January 27.

80 *Effect of Suspensio-uteri on Pregnancy and Labor. Jos. Taber Johnson, Washington, D. C.
81 Adenoids: The Harm They Do and What to Do with Them. F. M. Hanger, Staunton, Va.

February 10.

82 Diseases of the Eye, Ear, Throat and Nose. John Dunn, Richmond.
83 Plea for the Clinical Study of Psychiatry. Edward N. Brush, Towson, Md.
84 Medical Supervision of Matrimony. A. B. Greiner, Rural Retreat, Va.
85 Some Advances in Modern Medicine and the Benefits of Organized Effort. J. S. DeJarnette, Staunton, Va.

80.—See abstract in The Journal of January 7, p. 60 (Johnson).

Ophthalmic Record, Chicago.

February.

86 Case of Bilateral Hysterical Amaurosis. Adolph O. Pfingst, Louisville.
87 Papilloma of the Lachrymal Caruncle. C. A. Veasey, Philadelphia.
88 Penetrating Shot Injuries of the Eyeball. L. D. Brose.
89 Leucosarcoma of the Choroid with Secondary Involvement of the Ciliary Body. C. A. Veasey, Philadelphia.
90 *Ophthalmia Nodosa.* H. V. Würdemann, Milwaukee.

Bulletin of the American Academy of Medicine, Easton, Pa.

February.

91 Is the Present Method of Educating Girls Consistent with Their Physiologic Development, and Is It for the Welfare of the Race? A. L. Smith.
92 "Is Equal Treatment of the Sexes Best, or Do Girls Require the Same Treatment as Boys?" S. H. Weeks, Portland, Me.
93 The Gynecologic Aspect of Mental Overstrain at Puberty, and Its Influence on Development. Wm. E. Darnall, Atlantic City, N. J.
94 Effect of Modern School Methods on the Health of the Teacher. J. L. Greeley, Jamestown, N. Y.

Iowa Medical Journal, Des Moines.

February 15.

95 Surgical Treatment of Stomach Trouble and Billiousness. J. E. Summers, Jr., Omaha.
96 Acute Suppurative Osteomyelitis. C. B. Powell, Albia.
97 Concussion of the Brain. E. O. Plumbe, Rock Valley.
98 Minor Surgery. T. A. Hobson, Parkersburg.
99 Home Treatment of the Injured. J. V. Brann, Knoxville.

Fort Wayne Medical Journal-Magazine.

February.

100 Treatment of Foreign Bodies in the Eye. W. H. Snyder, Toledo.
101 Heredity. A. P. Buchman, Fort Wayne.
102 *Cholelithiasis.* E. J. McOscar, Fort Wayne.
103 Accidental Surgical Cases. A. W. Chase, Adrian, Mich.

Colorado Medicine, Denver.

February.

104 Intra-pleural Complications in Pulmonary Tuberculosis. S. G. Bonney, Denver.
105 Pleurisy with Effusion and Empyema. Importance of Early Diagnosis and Treatment, from Standpoint of Internist. James Rae Arnelll, Denver.
106 Case of Pernicious Anemia. O. M. Gilbert, Boulder.
107 Clinical Experience with Dunbar's Pollantin in Hay Fever. W. W. Bulette, Pueblo.

Medical Sentinel, Portland, Ore.

February.

108 Abortions. C. S. White, Gervais, Ore.
109 Methods Observed in the Chicago and New York Hospitals. C. W. Shaff, Lewiston, Idaho.
110 Experiences with the X-ray. D. Campbell, Butte, Mont.
111 Milk as a Diet for Children. Grant S. Hicks, Tacoma.

Bulletin of the Johns Hopkins Hospital, Baltimore, Md.,

February.

112 Teaching of Anatomy Illustrated by Professor Barker's Manual. F. P. Mall.
113 Anatomical Laboratory of the University of California. J. M. Flint.
114 Anatomical Material—Its Collection and Its Preservation at the Johns Hopkins Anatomical Laboratory. F. P. Mall.
115 Development of Grave Robbing in England. G. C. Robinson.
116 Flechsig's Investigation on the Brain. F. R. Sabin.
117 Developmental Relations of the Kidneys and Ureter in Human Embryos. A. G. Pohlman.
118 Abnormalities in the Form of the Kidney and Ureter Dependent on the Development of the Renal Bud. A. G. Pohlman.
119 First Appearance of the Renal Artery and the Relative Development of the Kidneys and Wolffian Bodies in Pig Embryos. E. C. Hill.
120 High Bifurcation of the Brachial Artery with Reunion at the Elbow. M. Herrinton.
121 Fixation of Tissues by Injection Into the Arteries. B. D. Myers.
122 Convenient Still to Make Absolute Alcohol. W. J. Calvert.

Journal of the Medical Society of New Jersey, Newark.

January.

124 Review of Recent Progress in Surgery. F. D. Gray, Jersey City, N. J.
125 Vibratory Massage in General Practice. Wm. G. Schauffler, Lakewood, N. J.
126 Gastric Ulcer. A. Marcy, Jr.
127 Management of Hospitals. W. J. Chandler, S. Orange, N. J.
128 Lithotomy. J. W. S. Gouley, New York City.
129 Physiologic Therapeutics in the Treatment of Locomotor Ataxia. W. H. Walling, Atlantic City, N. J.

Kentucky Medical Journal, Louisville.

January.

130 Enzymes of the Blood. D. J. Healy, Lexington, Ky.
131 Some Small Things in Surgery. Infections of Hand, Machine Injuries, Sutures, Granulating Wounds, Leg Ulcers, Circumcision. H. J. Whitacre, Cincinnati.
133 Pott's Fracture. A. P. Dowden, Eminence, Ky.
134 Ectopic Gestation—Diagnosis and Cases. M. A. Tate, Cincinnati.
135 Radical Cure of Inguinal Hernia. A. Schachner, Louisville.
136 Diagnosis of a Few Orthopedic Conditions Where an Early Diagnosis Is Necessary for Successful Treatment. B. F. Van Meter, Lexington, Ky.
137 Ulcerative Endocarditis. J. G. Cecil, Louisville, Ky.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

February 11.

1 *Removal of the Contents of the Anterior Triangle of the Neck in Cases of Malignant Disease of the Tongue. Henry T. Butlin.
2 The Thalamus. Gustav Mann, Oxford.
3 *Pathology and Treatment of Leprosy. E. R. Rost, Rangoon.
4 Second Case of Cutaneous Anthrax Successfully Treated by Sclavo's Serum Without Excision. Anthony Bowlby and F. W. Andrewes.
5 Medical Worthies of Cumberland. Henry Barnes.
6 Ergophobia. W. D. Spanton.

1. **Removal of Contents of Anterior Triangle.**—In cases of cancer of the tongue, Butlin advises the removal of the entire contents of the anterior triangle of the neck, for the same reason that the contents of the axilla are removed in a case of cancer of the breast. For several years he has performed an operation, the technic of which is as follows: A long incision is made from the mastoid process, or just below it, to the sternoclavicular joint, along the anterior border of the sternomastoid muscle. Another incision is carried from the symphysis menti across the neck to meet the first incision at about the upper border of the thyroid cartilage. These incisions divide the skin into two large triangular flaps, which should be of skin alone or of very little more than skin. The sternocleidomastoid muscle is retracted and its anterior border is cleaned so that the muscle is bare. The dissection is carried down in front of this muscle until the great vessels are exposed. The tissues between the sternomastoid and the muscles attached to the larynx are raised from below upward off the great vessels, which are left quite bare at the bottom of the wound. The muscles are cleaned of fascia and fat. The dissection is carried up along the line of the vessels, and deep down around them, in front and behind, particularly between the parotid gland and the vessels. The digastric triangle and the submental region are cleaned out thoroughly. A very clean dissection can be made in about one hour and twenty minutes. The operation is not a difficult one. Butlin advises taking up, clamping, and tying every vessel before it is divided, so as to avoid hemorrhage. After the dissection is over, the remaining vessels are tied, the wound is cleansed of blood, a long strip of gauze is thrust up beneath the jaw in the submaxillary triangle, and another is placed between the parotid gland and the vessels, and the ends of both these pieces are carried out at the lowest part of the wound. In addition, a drainage tube is inserted by the side of the gauze. On the following day, the gauze is removed, the tube being left in place. The wound is almost always healed within three weeks, and often it is well in nine or ten days. In this operation, the removal of the contents of the anterior triangle means the lymphatic glands, the submaxillary salivary glands, fat, connective tissue, a portion of the omohyoid muscle, the platysma, quantities of veins, sometimes a great piece of the internal jugular vein, if the glands are adherent to it, and sometimes a portion of the external carotid artery. Butlin states emphatically that this operation ought to be done in every case of cancer of the tongue where the disease is limited to one side of the tongue, unless there is some strong contraindication. The operation on the tongue should be performed first, and that on the neck at a subsequent time, usually at the end of a month. His results have been very satisfactory, much more so than in cases not so operated on.

3.—See The Journal, July 23, 1904, p. 286, and January 28, 1905, p. 330.

The Lancet, London.

February 11.

7 Case of Gangrenous Appendicitis, with Subphrenic Abscess. Charters J. Symonds, London.
8 *Duodenal Ulcer; with Notes of 52 Operations (51 cases). B. G. A. Moynihan.
9 *Septic Origin of Gastric and Duodenal Ulcers. W. Bruce Clarke.
10 *Rôle of an Excessive Meat Diet in the Induction of Gout. D. Chalmers Watson, Edinburgh.
11 *Carbonic Acid as a Factor in the Genesis of the Gouty State. Donald F. Shearer.
12 Rational Treatment of Fractures. J. Stafford Mellish.
13 *Pyloroplasty. Remarks on 17 Cases, with After-history for Periods Varying from Ten Years to Five Years and Three Months After Treatment. Rutherford Morison, Newcastle-on-Tyne.
14 General Gonococcal Infection. W. H. Wynn, Birmingham.
15 Hat Pin 4¾ Inches Long in Esophagus Producing a False Aneurism of the Superior Mesenteric Artery. H. D. Rolleston and T. R. C. Whipham.
16 Mandibular Processes Associated with Double Hare-lip and Cleft Palate. Walter L. Woollcombe.

8. **Duodenal Ulcer.**—From January, 1900, to September, 1904, Moynihan operated on 51 patients. There were 7 cases of perforating duodenal ulcer, with 5 recoveries; 22 operations for duodenal ulcer associated with gastric ulcer, with 1 death, and 23 operations for duodenal ulcer alone, with 1 death. All the ulcers which perforated were in the first portion of the duodenum; of the chronic ulcers, 43 were in the first portion, and 1 was in the second portion. The ulcers may be multiple, though they are usually solitary. The association of gastric and duodenal ulcers is met with more frequently than is commonly supposed. In Moynihan's series of 44 cases, there were 22 in which a gastric ulcer or ulcers were also present. Duodenal ulcer may occur at any age. The ages of Moynihan's patients in whom perforation occurred were 44, 25, 17, 17, 25, 22 and 40 years. In the remaining cases, the ages ranged from 19 to 61. Of the 51 cases, 32 were males and 19 females. The symptoms of duodenal ulcer are pain, hematemesis and melena, although some ulcers remain latent for long periods and their presence is only revealed by perforation or the occurrence of hemorrhage. The complications are: Hemorrhage; perforation, acute, subacute, and chronic; cicatricial contraction and induration, causing stenosis of the duodenum; cicatricial contraction, causing narrowing at the ampulla of Vater and obstruction to the outflow of bile and of the pancreatic juice; periduodenitis; cancer, compression of the portal vein from cicatrization of a deep ulcer; diseases of the gall bladder or bile ducts and diseases of the pancreas. Moynihan had 7 cases of perforation, 4 males and 3 females, with 2 deaths and 5 recoveries. There were 22 cases of duodenal ulcer, 14 in males and 8 in females, with 1

death. Gastric and duodenal ulcers were associated in 22 patients, 8 of whom were females and 13 males, with 1 death. The histories of all these cases are given in detail.

9. Septic Origin of Gastric and Duodenal Ulcer.—An instance supporting the view that oral sepsis is responsible for many gastric ulcers, is cited by Clarke. Six years after partaking freely, and for some time, of mouldy, maggoty bread and putrid water during a shipwreck, the patient had a retrocolic gastrojejunostomy performed on himself for the relief of a gastric ulcer, for which he had been treated at intervals since the time of the shipwreck.

10. Excessive Meat Diet and Gout.—Experiments have been carried out by Watson to determine the influence of an excessive meat diet in the induction of gout. An exclusive raw meat and water diet was fed to poultry and rats, and the results obtained showed that such a diet profoundly influences the thyroid gland. In the poultry, the diet induced a striking hypertrophy of the gland, with great increase of colloid material. In the case of the rats, a striking change was the alteration in the character of the secretion, with catarrh of the epithelial lining of the vesicles, the general appearance of the gland indicating exhaustion of its functions. Watson believes it possible that as a result of the excessive use of meat there is established in many subjects an alteration in the character of the thyroid secretion, which defect is remedied in the cases in question by the administration of thyroid gland. He has studied the effect of the administration of small doses of thyroid extract, aided by skilled balneologic methods. in two inveterate cases of chronic gout which had not been amenable to dietetic measures. In both cases, the symptoms were relieved to a striking degree, the relief, so far, having been of a fairly permanent nature.

11. Carbonic Acid and Gout.—Shearer is of the opinion that the unnatural excess of carbonic acid in arterial blood is the most potent factor in bringing about those changes which go to make up the gouty state.

13. Pyloroplasty.—A word is said in favor of pyloroplasty for stricture of the pylorus by Morison. He says the cases suitable for this operation are those with a history of longstanding stomach trouble, foul, abundant vomiting toward night, thin patients with dilated stomachs and with a palpable, movable nodule in the pylorus. The subsequent histories of the first 20 consecutive cases on which Morison performed a pyloroplasty are as follows: One patient died eighteen months after the operation from cancer of the pylorus (a malignant stricture having been mistaken for a simple one); another patient died from phthisis pulmonalis two years and four months after operation. In this case there was no recurrence of stomach symptoms. In 3 cases, the symptoms recurred, necessitating a further operation. In 2 of these, recurrence was due to stricture, and in the third it is presumed that a neurosis was at the bottom of the trouble. In 8 cases the result was perfect. In 6, symptoms, more or less troublesome, were complained of. On critical examination of these 6 cases, in one no definite organic obstruction was found at the pylorus; another patient vomits occasionally; a third has slight symptoms; the fourth complains of slight bilious attacks; the miserable condition of the fifth patient has been converted into one of comparative comfort, and the sixth patient complains of slight symptoms, but, unlike the other five cases, has not gained in weight.

Annales des Mal. Génito-urinaires, Paris.

Last indexed page 506.

17 (XXII, Nos. 14-16.) *Recherches sur les muscles du perinée et du diaphragme pelvien, sur les glandes dites de Cowper et sur le developpement de ces organes. A. Hogge (Liege).
18 Quelques cas de kystes spermatiques de l'epididyme (intravaginaux). L. Pinatelle and E. Duroux (Lyons).
19 *Bistournage (torsion) spontané, tuberculose interstitielle de l'epididyme, tuberculose du prépuce. Etude histologique. E. Dalous and E. Constantin (Toulouse).
20 (No. 17.) *Traitement des calculs de la vessie chez l'homme (stones in male bladder). J. Petit.
21 Adénomes kystiques de l'appareil urinaire. B. Motz and A. Cariani.
22 *Hematuries consécutives au cathétérisme brusque dans la rétention complète aigue. A. Grelinski.
23 Traitement des prostatiques en rétention d' urine incomplete avec distension. Nicolich. See abstract 102, page 588.
24 (No. 18.) *Rôle des vaisseaux anormaux dans la pathogénie de l'hydronéphrose (rôle of abnormal vessels). F. Legueu.
25 Description d' un cystotomo-écarteur (cystotome and retractor combined). B. Guizy (Athens).
26 (No. 19.) *De la pyélonéphrite dans ses rapports avec la puerpéralité. F. Legueu.
27 *La fécondité de la femme dans 63 pays (birth rate in 63 countries). S. Gache (Buenos Ayres).
28 (No. 20.) Rupture de varicocèle. Hydro-hématocèle concomitante. M. Patel (Lyons).
29 Cas de rein en fer de cheval (horse-shoe kidney). Bruncher.
30 La perversion sexuelle et le livre de Tarnowsky. E. Boix.
31 (No. 21.) Streptothricose des voies urinaires. Recherches expérimentales. C. Bruni (Naples).
32 Cas de prostatisme sans prostate (without enlarged prostate). Moran (Brest).
33 Table pour examens médico-chirurgicaux, voies urinaires et gynécologie. Estrabaut.

17. Muscles of the Perineum, Etc.—Hogge's comprehensive monograph on the anatomy, physiology and development of the muscles of the perineum, the pelvic diaphragm and Cowper's glands is profusely illustrated. His studies of sections of these parts in the fetus throw light on some of the anatomic findings.

19. Torsion of the Spermatic Cord.—This article states that the condition was diagnosed correctly in only 3 of the 57 cases of spontaneous torsion of the spermatic cord on record. In one case reported, the existence of chronic urethritis and of a tuberculous nodule on the prepuce masked the symptoms of the torsion. It should have been suggested, however, by the sudden onset of pain and swelling of the testicle and epididymis after violent physical effort, with vomiting, and by the subsidence and reappearance of these symptoms on several occasions. The patient was a man of 31, syphilitic, with a history of acute articular rheumatism. A complete histologic study of the excised parts concludes the article. The local tuberculous process probably had favored the torsion.

20. Treatment of Stones in Male Bladder.—Petit gives the details of 10 cases in which he has operated for stone in the bladder during the last 2 years. He emphasizes the importance of properly preparing the bladder for lithotrity, and of proper care afterward. He also proclaims anew the superior advantages of lithotrity. When there was merely slight irritation from the presence of stones alone, a permanent catheter was introduced the day before the operation, and the small stones were crushed and removed after lavage with a solution of antipyrin. Petit refuses now to operate in any case unless the patient can be under his direct supervision afterward. When there is considerable cystitis he reduces the inflammation with instillations of a 1-2 per cent. solution of silver nitrate, suspending it for two or three days before operating. The permanent catheter is introduced the eve of the operation, and the bladder is rinsed with antipyrin with or without laudanum. One of his patients had incontinence of urine for two days afterward. The patients in the severer cases were debilitated, elderly men, one of them a diabetic. All were permanently cured after lithotrity preceded by two weeks of treatment of the cystitis. There was suspicion of enlargement of the prostate in one instance, but all symptoms vanished after lithotrity.

22. Hematuria Following Catheterization.—Three cases were observed at the Necker Hospital at Paris, each of which was followed by an autopsy. The findings showed that the hematuria was due in every instance to some old, chronic lesion. No evidence could be found to sustain the assumption of hematuria from merely simple congestion of the bladder walls.

24. Abnormal Vessels as Causal Factor in Hydronephrosis.—Among the facts cited by Legueu is the convincing one that hydronephrosis is frequently cured by removal of some abnormal vessel. Two cases are reported illustrating the influence on the ureter of malformation of the vessels of the kidney. In one an abnormal artery passed from the aorta to the lower pole of the kidney and compressed the ureter. In the other case a supernumerary arteriole and vein passed to the lower pole of the kidney from the aorta and vena cava. In Picqué's case an abnormal artery passed from the renal artery to the lower pole of the kidney. The supernumerary artery was resected and the kidney fastened in place. Hartmann has reported a similar case. In one of Legueu's cases the ureter had been so dented by the supernumerary artery that he did not dare to trust to its recuperative powers and he removed the kidney.

26. Pyelonephritis in Relation to Childbirth.—Legueu advocates mere medical treatment for the mild cases. Dilatation of the bladder will sometimes have a remarkably beneficial action even when there is infection with retention and alarming exacerbations of fever. In severe, bilateral cases interruption of the pregnancy averts complications, such as albuminuria and congestion of the lungs, and, by removing the compression on the ureters, puts an end to the infectious accidents. The pregnancy is already compromised by the persisting infection. In the unilateral cases nephrostomy is the proper treatment, not interfering with the pregnancy, unless close to term, when premature delivery is preferable.

27. Birth Rate in 63 Countries.—Gache tabulates various statistics in regard to the stature of men and women, age of women at puberty and at the menopause, number of children and of twins. The figures show that the birth rate in the South American countries is remarkably high. In Argentina it is 40 per 1,000 inhabitants; in Uruguay, 35; in Costa Rica, 39. Fully 86 per cent. of the married women in Argentina have children by the second year after marriage, and the families average 4.15 children.

Revue de Chirurgie, Paris.

Last indexed page 330.

34 (XXV, No. 1.) *Rhumatisme tuberculeux ankylosant, arthrites plastiques, ankylosis osseuses d'origine tuberculeuse. A. Poncet and R. Leriche.
35 Note sur les anomalies des doigts et en particulier du petit doigt valgus (little finger). C. Féré and J. Perrin.
36 *Traitement du cancer par les rayons Roentgen. Djemil Pasha (Constantinople).
37 Physiologie pathologique de l'hématome pleural. C. de Gery and G. Froin.
38 *Etude critique sur l'opération de Trendelenburg. C. Viannay.

34. Ankylosis and Plastic Arthritis of Tubercular Origin.—Authors do not admit ankylosis as a consequence of true acute rheumatism, and yet ankylosing arthritis—for which rheumatism is supposed to be responsible—is currently encountered by surgeons. Nothing suggests tuberculosis, but study of antecedents, the course of the affection and the later history of the case, and especially sero-diagnostic and tuberculin tests will frequently prove the process to have been of a tuberculous nature. Bérard in 1900 reported a case of complete ankylosis of the elbow which was evidently a tuberculous process, and in 1903 Poncet had occasion to observe a case of rhizomelic spondylitis which proved to be a variety of "ankylosing tuberculous rheumatism," as he called it. Froelich at Berlin and Barbier and Français at Paris have since reported cases of tuberculous rheumatism, and Poncet in this article is able to present several personally observed or unpublished cases which bring the list up to 14. The affection is an arthritis, apparently of rheumatic origin, with a tendency to plastic development and ankylosis, and tuberculous in character. It is impossible to confound the affection with an ordinary bacillary arthritis nor with ordinary chronic rheumatism. The subjects are all tuberculous, although the affection may be the first and the sole manifestation of the disease for a long time. The age is an important factor, the subjects generally being under 16, the majority between 7 and 12. The variety affecting the spine occurs principally in elderly subjects. The extremes of life are thus most subject to this tuberculous rheumatism. It is distinguished from true acute articular rheumatism by its mode of onset, by the predominance of the local over the general symptoms, by the lesser frequency, to say the least, of complications on the part of the heart, by the inefficacy of salicylic medication, and by its clinging to the joint affected. It can be differentiated from infectious pseudo-rheumatism by excluding gonorrhea, diphtheria and syphilis, and by a history of tuberculosis in the environment. The lungs should be examined and every sign of latent tuberculosis should be sought for, including Mérieux' "indirect tuberculin test." (For description of this interesting test see foreign news columns, The Journal, March 4, page 726.) The general treatment for tuberculosis should be instituted early, with passive movements to prevent ankylosis, and revulsion, blisters, etc., to reduce the local congestion. Radioscopy will decide whether the ankylosis once established is bony or fibrous, and the possibility of recurrence should not be forgotten in operating. Mobilization under anesthesia and resection to a greater or less extent are indicated. During the acute stage the salicylates and antipyrin will have no effect except possibly to enfeeble the patient.

36. Radiotherapy of Cancer.—Djemil Pasha writes from Constantinople to report 7 cases of cancer treated with the *x*-rays, with eminently favorable results; 3 patients were cured, 3 improved, and 1 was not benefited. The latter was a case of sarcoma of the breast and it seemed to be aggravated by the treatment. Eleven other patients were treated, but failed to complete the course and are not included in the report. He urges radiotherapy as a valuable palliative in cases of advanced, deep-seated cancers, its influence on the cachexia being apparently very favorable.

38. Attempts to Obliterate the Internal Saphena.—Viannay traces the history of surgical intervention on the trunk of the internal saphena for the purpose of establishing a definite barrier to the superficial venous circulation. This method of treatment dates from the eighteenth century, but Trendelenburg was the first to determine the pathologic physiology of the circulation in the varicose saphena and to apply ligation systematically in treatment. He showed that the valves in the dilated vein are necessarily incompetent, as they are unable to close the lumen of the distended vessel. Every one accepts his facts, but each operator has a special technic for treating the trouble. Experiments on the cadaver, and extensive clinical experience have convinced Viannay that excision of a portion of the saphena near its entrance into the femoral vein offers a better guarantee against re-establishment of the superficial circulation than operations lower down. Excision in the region of the condyle is inevitably ineffectual. Multiple resections and total extirpation of the vein are scarcely more effectual than high resection alone. When the vein is isolated and ligated the surrounding cellular tissue should be minutely examined with the grooved sound to discover every affluent and collateral or double vein. In case of a double saphena, the two trunks approach each other as they near the femoral vein, and the second one is more readily detected at this point.

Revue de Mêdecine, Paris.

Last indexed XLII, page 563.

39 (XXIV, No. 1.) Sur l'absence d' hyperglycémie dans la glycosurie uranique. R. Lépine.
40 The Fear of "Catching Cold" Prepares the Soil for Tuberculosis.—De ce qu 'ou appelle "refroidissement" en rapport à la tuberculose. A. Chelmonski (Warsaw).
41 Association de fièvre scarlatine et de fièvre typhoide. V. Le Goic. Two cases.
42 *Les accidents syphilitiques pendant le tabes. Dalous.
43 (No. 2.) *La contagiosité de l'ictère. S. Costa.
44 *Des troubles médullaires de l'artério-sclérose. La parésie spasmodique des athéromateux. A. Pic and S. Bonnamour. (Commenced in No. 1.)
45 *Classification of *Facial Neuralgias by Response* to Cocain.—Essai de classification de quelques névralgies faciales par les injections de cocaine loco dolenti. H. Verger (Bordeaux). (Commenced in No. 1.)
46 (No. 3.) Cas de diabète levulosurique. R. Lépine and Boulud.
47 Rôle pathogénique de la simulation. C. Féré.
48 *Infectious Angina Pectoris.—Angine de poitrine infectieuse (septique). J. Pawinski (Warsaw).
49 *De la rétention des chlorures dans l'ascite d'origine hépatique (chlor'ds in ascites). D. Olmer and V. Audibert.
50 Le bacille de la dysenterie. L. E. Bertrand.
51 (No. 4.) *Tuberculose pulmonaire. Pathogénie, evolution. Acidose sanguine. C. Canter (Liège).
52 Epidémie de diphthérie dans un service de typhoidiques. Niclot.
53 (No. 5.) Liver in the Tuberculous.—Du foie des tuberculeux. F. Mou'sset and S. Bonnamour.
54 Traitement de la tuberculose pulmonaire par le sérum Marmorek. Jaquerod (Leysin). Favorable report.
55 *Etude de la maladie de Bence Jones. H. Bertoye (Lyons). (Commenced in No. 4.)

56 (No. 6.) Interet clinique de quelques equivalents des épileptiques. C. Féré.
57 Le mal perforant dans la paralysie générale. E. Marandon de Montyel.
58 Affection subaigue ayant presenté le syndrome "leucémie." (Recovery.) Conor.

42. **Syphilitic Manifestations in Tabes.**—Dalous has collected 21 cases of syphilid occurring in the course of tabes. The list includes 6 unpublished cases, some personally observed. Half of the entire number did not know that they had ever been infected. He thinks that this coexistence of syphilids with tabes would be found to be much more frequent if all tabetics were examined for syphilids, and if all subjects presenting syphilid were examined for incipient tabes.

43. **Contagiousness of Icterus.**—Seventy-seven soldiers were affected with epidemic icterus in some shifting battalions. The connection between the various groups of sick men was readily established, as also the spread of the disease by direct contact in the pre-icteric phase.

44. **Spasmodic Paresis with Atheroma.**—Pic and Bonnamour describe the autopsy findings in 7 out of 38 cases which had presented a syndrome characterized by spasmodic paresis of the lower limbs with exaggeration of the reflexes and with frequent coexistence of psychic derangement. The legs were weak and the subjects could walk only with short steps. This spasmodic paresis has a progressive course. The anatomic basis seems to be a diffuse or localized sclerosis of the spinal cord or interstitial myelitis, of vascular origin.

45. **Classification of Facial Neuralgias by Cocain Test.**—When the pain of neuralgia is arrested by an injection of cocain at the most painful point, the trouble is evidently in the terminals of the nerve. When the pain persists notwithstanding the injection of cocain, the trouble is of central origin, or, at least, it is not peripheral. The cocain should be injected before the paroxysm to prevent its appearance. Such an injection is liable to banish the pain permanently. Verger's clinical experiences with this cocain test in 23 patients are reviewed and the neuralgia classified according to the response to the cocain test. In facial neuralgia of peripheral origin, the pains were usually in the jaws and cheek over them. They were frequently traceable to acts like chewing, sneezing, yawning or speaking. Other differentiating points are the possibility of bringing back the pain by similar acts, also the persistence of a dull ache in a zone smaller than the area innervated by the nerve, and of tenderness on deep pressure, frequent pain on pressure of the emerging point of the nerve, frequent disturbances in the sensibility to pricks, frequent absence of spasmodic secretory symptoms, and the normal behavior of the pupil reflexes In one of his cases the pain was arrested by cocain injected into the hypertrophied inferior turbinate. When the neuralgia is of central origin, the intervals are free from any pain or local tenderness. The pain usually radiates over a more extensive area than in peripheral neuralgia, and the attack is liable to be brought on by hot or cold drinks or by long rides in the cold. Treatment of peripheral neuralgia should be local, by modifying injections or resection, but in central neuralgia the treatment should be medical, progressively pushing the opiates and electrotherapy. Surgical intervention is the last resource, and it should attack the nerve high up instead of wasting time on peripheral, necessarily futile, operations. The record of resection of the gasserian ganglion is bad, however, 1 death to every 3 cases, and only one absolute cure to every 5 treated.

48. **Infectious Angina Pectoris.**—Pawinski refers to treatment in concluding this study of the clinical picture and pathogenesis of septicemic angina pectoris. The emunctories should be aided and the local process in the tonsils be combated. The nitrites, he thinks, are of no use in infectious angina pectoris.

49. **Retention of Chlorids in Case of Cirrhosis of Liver.**—Seven clinical cases are reported in detail to show the constant retention of chlorids in patients with ascites of hepatic origin. There was no impermeability on the part of the kidneys in these cases, but the chlorids seemed to gravitate chiefly into the peritoneal cavity. This attracted fluid to the spot. The essential factor in the liver ascites is not the retention of the chlorids or of any other substance. Remove the obstacle to the portal circulation and the ascites will vanish. Reducing the intake of salt has only a palliative influence, and merely retards the production of the effusion, but even this is a gain. Large intake of salt would hasten its production.

51. **Acid Salts in Blood in Tuberculosis.**—Canter is convinced that greater attention should be paid to the acid salts in the organic fluids in studying tuberculosis. Four years of careful research have conclusively demonstrated, in his opinion, that the normal organism with its standard phosphatic acidity is refractory to tuberculosis. Hypoacidity and deficiency in the phosphates are the predisposing causes in the pretuberculous stage. It is possible to remove this cause and to protect the subject against tuberculosis by raising the acidity and the proportion of phosphates above normal. If the patient is already infected, increasing the proportion of phosphates and raising the acidity will enable him to get rid of the tubercle bacilli and to repair the lesions if not too far advanced. The bacilli destroyed in their haunts are liable to cause more or less intoxication of the system, and this intoxication limits the curative powers and is the test of the gravity of the morbid process. When there is only a slight or moderate febrile reaction, with a normal or hypernormal acidosis, a subject with pulmonary tuberculosis can be cured easily, no matter how apparently extensive the lesions may be. Treatment to increase the acidity and phosphates should be gradual and slow, with very small doses of the phosphates or phosphoric acid, etc., gradually accustoming the organism to the struggle before it. Forced feeding is important, but it should be borne in mind that fats, starch, sugar, alcohol and organic acids produce very little if any acid and no phosphate ash Canter gives his technic for testing the acidity, preferring a modified phenolphthalein test of the twenty-four hour urine. He states that the blood pressure, and also the secretion of hydrochloric acid, rise and fall with the acidosis. Tuberculous subjects are invariably hypoacid and hypophosphatic. By increasing the proportions above normal in this respect the organism becomes an unfavorable medium for the bacilli and they cease to proliferate. This allows the organism time to get the upper hand.

55. **Albumosuria.**—Bertoye's article is a comprehensive monograph and review of the literature on Bence Jones' albumosuria. It also gives a description of a case studied from the chemical as well as from other standpoints. He thinks that it should be regarded as a toxic-infectious disease.

Berliner klinische Wochenschrift.

59 (XLII, No. 3, January 16.) Influence of Alcohol on Susceptibility of Rabbits to Infection.—Ueber den Einfluss des Alkohols auf die Empfindlichkeit der Kaninchen für die Erzeugnisse von Bakterien. C. Fraenkel.
60 *Ueber Immunisierung gegen Tuberkulose. P. Baumgarten.
61 *Secretion of Gastric Juice in Sham and Rectal Feeding.—Die Magensaftsekretion des (gastrostomierten) Menschen bei "Scheinfütterung" und Rectalernährung. Umber.
62 *Experimentelle Untersuchungen über den Magensaft (gastric juice). A. Bickel.
63 *Action of Röntgen Rays on Ovaries.—Die Einwirkung der Röntgenstrahlen auf Ovarien. L. Halberstaedter.
64 Kasuistischer Beitrag zur therapeutischen Anwendung des Dr. Aronson-schen Antistreptokokkenserums (success in two cases). R. Klein.
65 *Nervous and Mental Affections After Electric Accidents.—Ueber Nerven- und Geisteskrankheiten nach elektrischen Unfällen. A. Eulenburg (Berlin). (Commenced in No. 2.)
66 Infektionswege bei der Lungentuberkulose. H. Beitzke.

60. **Immunization Against Tuberculosis.**—Baumgarten reports successful results of attempts to render a calf immune to virulent bovine tuberculosis to which the controls rapidly succumbed. Its serum likewise protected another calf against virulent infection.

61. **Secretion of Gastric Juice in Sham and Rectal Feeding.**—Umber devotes eight pages to a minute description of the conditions observed in the case of a man of 59 whose esophagus had gradually become impermeable from stenosis, probably malignant. A Kader fistula into the stomach was made and the patient rapidly recuperated and regained the aspect of

health with gradually increasing weight. The stomach functions were apparently normal. The esophagus became more permeable later, and the conditions of the gastric juice could be studied as food was taken by the mouth or rectum. For the fictitious feeding mouthfuls of food were very carefully chewed, but not swallowed, not even the saliva. In three minutes a continuous stream of limpid juice flowed out through the fistula. When meat alone was chewed a very concentrated gastric juice was secreted. When the patient merely rinsed his mouth several times with a mouthful of brandy, a limpid, faintly acid gastric juice commenced to flow, although in the half-hour preceding only a single drop of a slightly alkaline juice had emerged. When the subject chewed rubber or tobacco vigorously there was a copious flow of saliva, but not a drop of gastric juice appeared. The effect of fatigue was apparent in the tests, the commencement of the flow of gastric juice being retarded. The acidity of the gastric juice was found higher—up to .35 per cent.—than that cited in the text-books. The freezing-point ranged from minus .81 to minus .15 C., testifying that there is no attempt on the part of the secretory glands to establish isotonic relations with the blood. Tests of nutrient enemas showed that after rectal injection of a mixture of 200 c.c. milk, 40 gm. grape sugar, 1 yolk of egg and 2 gm. salt, secretion of a powerful gastric juice commenced in four minutes and persisted for half an hour. The total amount was 5.5 c.c.; the freezing-point minus .29 C., with a total acidity of from 30 to 35, and of free HCl, 20 to 30. This rectal gastric juice can be due only to reflex action, establishing communication between the rectal mucosa and the stomach glands. The influence of suggestion was eliminated in these tests. The fact that the secretion of acid gastric juice is the most important secretory stimulus for the pancreatic secretion—which is the one that takes exclusive charge of a rectal nutrient enema—shows the admirable purpose of this reflex phenomenon.

62. **Experimental Research on Gastric Juice.**—Bickel has been studying the same phenomena on a child with an artificial gastric fistula, and also on dogs. His conclusions are to the effect that the gastric juice does not differ materially in respect to concentration whether the diet is predominantly meat or milk. The meat gastric juice is generally richer in electrolytes, and is slightly more concentrated. Under pilocarpin dogs exhibited enhanced secretory activity in the stomach. Tests of mineral waters likewise demonstrated that certain waters are able to stimulate the specific secretion of the gastric mucosa without the co-operation of other factors. All this research tends to show that purely physical phenomena are inadequate to explain the forces at work. The human gastric mucosa can not be compared to a dead animal membrane. The gland cells reply to proper stimuli with a powerful, active response. Regardless of the concentration of the blood around or of the contents in the stomach, they pour out their concentrated or diluted secretion into the stomach cavity. The ultramicroscopic picture of human gastric juice is the same as that of dog's gastric juice. (The discussion on this article by several noted internists is given also.)

63. **Influence of Radium Rays on Rabbits' Ovaries.**—Halberstaedter exposed the ovary on one side to the Roentgen rays, and this ovary was checked in its growth in every instance. When the rabbits were killed later it was found that the exposed ovary was always less than one-half or one-third of the size of the unexposed one. The ovaries are incomparably more sensitive to the rays than the skin, and this fact must not be forgotten in *x*-ray exposures of the abdomen. Female workers in laboratories should be protected against injury from this source. The testicles are also sensitive, but much less so than the ovaries.

65. **Nervous and Mental Affections After Electric Accidents.**—Eulenburg refers to several cases of such affections, tabo-paralysis, progressive paralysis or multiple sclerosis, after electric accidents. In one instance a laborer was constantly exposed to occasional mild electric shocks in the course of his work. On two occasions the shocks were violent, and may be qualified as accidents. Since the last one he has presented the typical picture of multiple sclerosis, and the courts have granted him full industrial indemnity. The circumscribed injuries of the nerve, which are liable to result from the direct action of the electric current, would afford a local predisposition for the development of sclerotic foci. He describes a typical case of a severe mental affection following an electric accident which has many points in common with both multiple sclerosis and paralysis, and yet differs from both. The end of a wire carrying a current of 500 volts fell on the man's head. The day was warm and his scalp may have been perspiring. A chronic, degenerative, progressive, cortical encephalopathy developed. Similar accidents, with stronger currents, have been borne by others without injury. The conditions of conductibility and resistance vary in each case. A laborer in a potash works was killed by a current of only 95 volts. The ground and his clothing and hands were wet with the solution. The article is a careful study to aid in the guidance of the medical expert in suits arising from such accidents.

Deutsches Archiv f. klinische Medicin, Leipsic.

Last indexed XLIII, page 1826.

67 (LXXXI, Nos. 5-6.) *Purin Bodies of Feces. Study of Purin Bases of Intestinal Wall, Bile and Pancreatic Juice.—Die Purinkörper der Fäzes nebst Untersuchungen über die Purinbasen der Darmwand, der Galle und des Pankreassaftes. A. Schittenhelm (Göttingen).
68 Non-Absorption of Potassium Iodid in Stomach, and Inhibiting Influence of Morphin on Emptying of Stomach.—Resorption von Iodkalium im menschlichen und tierischen Magen und über den hemmenden Einfluss des Morphins auf die Magenentleerung. K. H. Baas (Breslau).
69 *Study of Metabolism in Case of Diabetes with Special Reference to Prognosis.—Stoffwechselbeobachtungen an einem Falle von Diabetes mellitus, mit bes. Berücksichtigung der Prognose. A. R. Mandel and G. Lusk (New York).
70 Ueber das absolute Sphygmogram und seine klinische Bedeutung, nebst kritischen Bemerkungen über einige neuere sphygmomanometrische Arbeiten. Sahli (Berne).
71 *Diagnostic Significance of Mark of Strangulation on Ascaris.—Die Strangulationsmarke beim Spulwurm in ihrer diagnostischen Bedeutung. W. Ebstein.
72 *Reply to Criticisms of Sahli Test of Stomach Functions.—Ueber die Sahlische Methode der Magenuntersuchungen. F. Seiler and H. Ziegler (Berne).
73 *Action on Blood of Lessened Atmospheric Pressure.—Wirkung des verminderten Luftdrucks auf das Blut. A. Fiessler.
74 Die rheumatische Facialis-Paralyse und ihre etiologischen Beziehungen zum Ohr (relations to ear). Stenger.
75 *Ueber congenitalen Icterus mit chronischem Milztumor (enlarged spleen). H. v. Krannhals (Riga).

67. **Purin Bodies in Feces and in the Intestinal Walls.**—One of the most interesting facts learned in Schittenhelm's researches is the large proportion of purin bases, especially adenin and guanin, but also xanthin and hypoxanthin, which he discovered in the walls of the intestines. The purin bases he also found to be a regular constituent of the pancreatic secretion. The quantity is very small, however.

69. **"Fatal Ratio" in Prognosis of Diabetes.**—This article appeared originally in The Journal, page 241 of the last volume. The ratio between dextrose and nitrogen on a meat-fat diet is the new method of prognosis proposed.

71. **Diagnostic Significance of Mark of Strangulation on Ascaris.**—The diagnosis in the case described had been icterus from occlusion of the common bile duct. An ascaris was passed in the stool, and at once the symptoms subsided. The ascaris presented a deep circular indentation at one point and traces of indentation at two other points. Ebstein regards these evidences of constriction as a sign that the worm must have been caught in some narrow passage. From the history of the case and the recovery of the patient after expulsion of the worm, he is convinced that it must have wandered into the biliary passages and obstructed the lumen of the bile duct.

72. **Sahli's Flour-Soup Test of Stomach Functions.**—The criticisms of this method of testing the stomach functions are here answered, and the invariably fine results attained with it in Sahli's clinic are emphasized. Certain points must be borne in mind, however, such as that the soup or gruel must be made appetizing; the subject must change his position regularly every five minutes, lying on back, then on left side and then sitting up, refraining from lying on the right side. An interesting feature of the monograph is the after super-

vision of persons once tested, to follow the course of their gastric affection. The findings always corroborated those of the test. Butyrometric determination of the fat is also necessary. Full details of the technic of this test soup were given in The Journal, xxxviii, page 1477, 1902.

73. Influence on Blood of Diminished Atmospheric Pressure.—Fiessler attributes to mechanical factors alone the apparent variations in the composition of the blood noted in the pneumatic cabinet and at high altitudes.

75. Familial Congenital Icterus with Enlarged Spleen.—In one family 3 brothers presented this picture, as also the mother, her sister and her mother. The father was normal. The icterus was evidently not due to obstruction to the flow of bile, but rather to overproduction. The particulars of 26 cases of congenital icterus with enlarged spleen are given in tabulated form. Those of syphilitic origin are not included in this review of the subject.

Münchener medicinische Wochenschrift.

76 (LII, No. 4, January 24.) *Behandlung der Leukämie mit Röntgen-Strahlen. O. Eisenreich (Munich).
77 *Zur Technik der Behandlung der Leukämie mit Röntgen-Strahlen. Winkler (Ibid.).
78 *Zur Röntgen-Behandlung der Leukämie. W. Wendel.
79 *Weitere Beiträge zur Behandlung der Leukämie mit Röntgenstrahlen. Schieffer.
80 Blue Glasses for Examination by Artificial Light and Description of Simple, Inexpensive Apparatus for Color Tests.—Die Verwendung blauer Gläser der Untersuchung mit künstlichen Licht nebst Beschreibung eines einfachen Apparates zur praktischen Prüfung des Farbensinns. P. Erdmann (Rostock).
81 Zincum sulfuricum oder Silber-Salze bei der Gonorrhoe-Behandlung. M. Juliusberg (Neisser's clinic, Breslau).
82 Ueber berufliche Formalin-Onychien- und-Dermatitiden (professional formalin lesions). Galewsky. See editorials, page 717.
83 *Die intravenöse Salizyl-Behandlung und ihre diagnostische [illegible]
84 14[illegible] (forceps deliveries). K. Heil (Darm-[illegible]
85 Ve[illegible] Desinfektion bei Ankylostomiasis. H. Bruns. (Commenced in No. 3.)

76-79. Experiences with X-Rays in Leukemia.—Meyer and Eisenreich report 2 cases of myeloid leukemia treated with the Roentgen rays. They differ in several points from others that have been published. In the first case—the patient, a machinist of 31—the blood findings altered completely under the influence of the rays, and notable leucocytosis followed, with mast cells predominating. By the end of four months the leucocytes had fallen from 165,000 to 6,100, but then rose again to about 22,000, and later to 35,000. The general health was very much improved in both patients, the working capacity being restored, the patients gaining in weight and the proportion of red corpuscles and of hemoglobin approximating normal. The blood findings altered so materially under the influence of the rays that no one would have suspected leukemia from the blood picture. The spleen returned to normal size in the first case, but remained enlarged in the second case in which the leukemia was of longer standing and the symptoms more serious. Since suspension of the treatment the blood findings have displayed a tendency to return to the leukemic picture, so that the hope of actually curing leukemia by this means is not very promising. Exposure of the liver and spleen in healthy subjects failed to show any action of the rays on the autolytic processes of the ferments. Heineke's recently published experiments indicate that the action of the rays is more in the line of the vital processes, phagocytosis, etc.

Wendel of Marburg has collected from the literature 38 cases of leukemia treated with the *x*-rays and adds another to the list. He tabulates the details of the various cases and states that more than 90 per cent. were favorably influenced. In 2 instances no appreciable benefit was observed, and in 2 the disease rapidly progressed notwithstanding the treatment. In one instance the patient succumbed to an intercurrent disease, and in another to a rapid recurrence. In 2 others death ensued although the patients seemed to be improved at first. He remarks that no case of acute leukemia has been thus treated to date. The myeloid variety seems to afford a better prognosis than the lymphoid, although cases of the latter have been benefited The various kinds of leucocytes appear to behave differently in response to the *x*-rays. [He includes in his tables the cases published in The Journal, with the exception of Pusey's, in The Journal of January 18 and April 12, 1902, fully a year before Senn's first publication. The early history of *x*-ray treatment of leukemia—before Senn—was given in The Journal of July 23, 1904, page 273.—Ed.]

Schieffer has treated 5 cases of leukemia with the *x*-rays. The results were so fine in 3 cases that he does not hesitate to pronounce them cured, for the time being at least. One patient abandoned treatment after being materially improved by a few exposures. The fifth patient—a man of 46, almost moribund—showed great benefit at first, but the symptoms recurred after a few weeks and the patient soon died in collapse, like Stone's patient. The earlier in the disease the treatment is instituted the better the results attained. Contrary to the technic in other clinics, the spleen alone was exposed in these cases, and when treatment had to be discontinued on account of dermatitis the improvement continued to progress during these pauses. In summarizing his impressions of this method of treating leukemia, Schieffer ranks Roentgen treatment of leukemia with digitalis treatment of heart affections. There are few measures at our disposal, he says, which produce such unmistakably favorable effects, and even if only symptomatic, yet we can not afford to dispense with them.

83. Intravenous Salicylic Medication.—Mendel states that he has had no mishaps in 2,000 injections of a fresh mixture of 8 parts sodium salicylate to 2 parts caffein and distilled water to 50 parts. He injects 2 c.c. at intervals of from twelve hours to three days. He now has the mixture put up in fused, brown vials holding 2 c.c. each. In his last series of 500 injections some of the patients were senile, some arteriosclerotic or diabetic, their vascular systems evidently very vulnerable, yet not a single mishap occurred although some patients required as many as ten injections. He reiterates that this method banishes most rapidly and certainly all rheumatic pains and fluid exudations in diseased joints—especially in the non-febrile cases. It proved effectual after failure of all other internal and external measures, and it is free from all the disagreeable by-effects inherent in internal salicylic medication. It is particularly valuable for differentiation of rheumatic from other painful affections, although the physician must beware of suggestion in making an exploratory injection for this purpose. Several cases are related in which a puzzling rheumatic affection was disclosed by the subsidence of the symptoms under the injections, or it was excluded by their unmodified persistence. His experience with 2,000 salicylic injections and 6,000 other intravenous injections has confirmed the absolute harmlessness of the intravenous route. The injections should always be made in a vein in the arm, never in the leg.

Riforma Medica, Palermo and Naples.

Last indexed page 667.

86 (XX, No. 50.) *L'acido urico nei liquidi da versamenti (in effusions). F. Galdi and G. Appiani (Padua).
87 *Behavior of Pancreatic and Liver Secretions in Splenectomized Animals.—Sul modo di comportarsi della secrezione pancreatica ed epatica negli animali smilzati. L. Girolama.
88 La sindrome spasmodica nelle infezioni e nelle intossicazioni. R. Massalongo.
89 (No. 51.) *Intorno alla sindrome "poliglobulia con tumore di milza" (with enlarged spleen). M. Ascoli.
90 *Sugar in Treatment of Pulmonary Phthisis.—Lo zucchero nella cura della tisichezza polmonale. R. Massalongo and G. Danio.
91 Contributo alla conoscenza della fisiopatologia della cellula pancreatica. E. Savagnone. (Commenced in No. 50.)
92 *Free Bodies in Cavities of Large Serous Membranes.—Contributo anatomico e sperimentale alla conoscenza dei corpi liberi nelle cavita delle grandi sierose. L. Tomellini. (Commenced in No. 50.)

86. Uric Acid in Effusions.—The authors found uric acid a common constituent of effusions. The proportion is larger in exudates than in transudates. It is generally directly proportional to the specific gravity, the total nitrogen, and the albumin content of the fluid. The proportion of uric acid was unusually high in the cerebrospinal fluid in 2 cases of tuberculous meningitis. The proportion is probably above the average in all exudates of tuberculous origin.

87. **Behavior of Pancreatic and Liver Secretions in Splenectomized Animals.**—Girolamo's experiments on rabbits and dogs failed to show that extirpation of the spleen altered in any way the secretory functions of the pancreas and liver.

89. **Chronic Cyanotic Polycythemia with Enlarged Spleen.**—Ascoli's case resembles the one reported by Osler (see THE JOURNAL, xli, No. 44, page 634). The patient was a young man, with mild malarial antecedents and erysipelas. He presented the typical blood findings, enlarged spleen, cyanosis, dread, and digestive disturbances, with pigmentation of the face, and absence of dyspnea; the tuberculin test was negative. The red corpuscles numbered 7,200,000, the whites 15,000. The average proportion of leucocytes was: Polynuclear neutrophiles, 51; eosinophiles, 20; mast cells, 2; large mononuclear and transitional forms, 11, and lymphocytes, 16. The hemoglobin was 95 and iron, 110, equivalent to .69 gm. of iron to the liter of blood. He states that none of the cases on record showed such a large proportion of eosinophiles. The dilatation of the stomach and lack of hydrochloric acid may have been secondary to the modifications in the circulation of the stomach mucosa. In treatment arsenic, deprivation of iron, radiotherapy and venesection have all been tried with mediocre or negative results. Cominotti removed the spleen in his case, but the premature death of the patient deprived his experience of much value. Splenectomy should be borne in mind, especially if a tuberculous origin can not be positively excluded. No specific anatomic alterations have been found to date. In the case described the patient left the hospital after slight subjective improvement under arsenic.

90. **Sugar in Treatment of Pulmonary Phthisis.**—This communication from the hospital at Verona extols the benefit to be derived from sugar as a means of superfeeding tuberculous subjects. From 100 to 500 gm. of sugar were added to the daily diet, averaging from 5 to 12 gm. per kilogram. Even on as little as from 100 to 200 gm. a day the patients frequently gained from 16 to 30 pounds or more in two or three months. In many instances the gain was greater than the amount of sugar ingested. It was especially effectual in the febrile form or those with slight evening temperature. It was generally relished and well tolerated by the patients, and no dyspeptic disturbances or intestinal fermentations were ever noticed that could be attributed to the sugar. The taste was disguised in coffee, milk or with some bitter tincture, as preferred or not. It is indicated for all patients who are unable to take cod-liver oil, and it will be found a desirable food and remedy in many cases of tuberculosis.

92. **Free Bodies in Cavities of Large Serous Membranes.**—A free body can develop in the pericardium from detachment of some fatty lobule. Similar free bodies may be formed in the peritoneum from torsion of some tuft or appendix in the omentum, the intestinal peristalsis twisting it on its axis. Such free bodies can be induced experimentally by ligating a similar tuft of omental tissue. Tomellini observed 2 cases of such free bodies in the serous cavities, one complete and the other in process of formation.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE MEDICAL EXAMINATION FOR LIFE INSURANCE and Its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D., St. Paul, Professor of the Theory and Practice of Medicine in the University of Minnesota. Second Edition, Revised and Enlarged, with 99 Illustrations. Cloth. Pp. 466. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

THE OPHTHALMIC YEAR-BOOK. A Digest of the Literature of Ophthalmology with Index of Publications for the Year 1903. By Edward Jackson, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic. With 45 Illustrations. Cloth. Pp. 260. Denver: The Herrick Book and Stationery Co. 1904.

THE MODERN MASTOID OPERATION. By Frederick Whiting, A.M., M.D., Professor of Otology, Cornell University Medical College. Illustrated by 25 Halftone and 23 Key Plates Made from Original Drawings. Half Leather. Pp. 353. Price, $6.00. Philadelphia: P. Blakiston's Son & Co. 1905.

TWENTY-EIGHTH ANNUAL REPORT OF THE BOARD OF MANAGERS OF ST. CHRISTOPHER'S HOSPITAL FOR CHILDREN, Situated at the Northwest Corner of Lawrence and Huntingdon Sts., Philadelphia. For the Year Ended Sept. 30, 1904. Paper. Pp. 39. Philadelphia: Allen, Lane & Scott. 1904.

TRANSACTIONS OF THE NATIONAL ASSOCIATION OF UNITED STATES PENSION EXAMINING SURGEONS. Third Annual Meeting, Atlantic City, N. J., June 6 and 7, 1904. Vol. II. Cloth. Pp. 187. Published by the Association, Rochester, N. Y. 1904.

THE MEDICAL MISSIONARY SOCIETY IN CHINA. Annual Report for the Year 1904, with Illustrations. Paper. Pp. 37. Printed by the China Baptist Publication Society, Canton, China.

TRANSACTIONS OF THE LUZERNE COUNTY MEDICAL SOCIETY FOR THE YEAR ENDING DECEMBER 31, 1904. Vol. XII. Paper. Pp. 205. Wilkesbarre: The E. B. Yordy Co. 1904.

NEW PATENTS.

Recent patents of interest to physicians, etc.:

779833. Medicated sweetmeat. Maylean Bjornstad and J. Stacy, Auckland, New Zealand.
779637. Sterilizing organic substances. Carl C. L. G. Budde, Copenhagen, Denmark.
779527. Wax emulsion and producing same. Herbert H. Church Bellows Falls, Vt.
779591. Eye shield. Albert A. Fairbanks, Atlanta, Ga.
779777. Producing silver emulsions. Johannes Gaedicke, Berlin, Germany.
779705. Treating alkaline solutions of chromate of soda. Wm. T. Gibbs, Buckingham, Canada.
779998. Making hydrochloric acid. Wm. T. Gibbs, Buckingham, Canada.
779498. Sterilizing apparatus. Alexander T. Pfeiff, Stockholm, Sweden.
779885. Speculum. Charles F. Spangler, Kane, Pa.
779749. Antiseptic feeding bottle. Charles W. Tinling, Hamilton, Canada.
780025. Supporting frame for use with slipper bedpans. Evelyn A. Conyers, Melbourne, Victoria, Australia.
780415. *Apparatus for expressing juice from meat.* Ida C. Eavenson, Philadelphia, Pa.
780278. Collapsible stretcher. Kaspar Freuler, Zurich, Switzerland.
780424. Inhaler. Theodor Heryng, Warsaw, Russia.
780226. Castor oil praline. Leonard Pink, Berlin, Germany.
780077. Medical vaporizer. James E. Van Ness, Chicago.
780699. *Ear trumpet. Alvin W. Aylsworth,* Fostoria, Ohio.
780598. Catamenial sack. Mary E. Coleman and M. Jarmulowsky, New York.
780551. Hot-water bottle. Benjamin J. Craggy, Manchester, N. H.
780710. Nozzle for syringes. Henry Dickinson, Flushing, N. Y.
780645. Artificial leg. Gustaf A. Erickson, Minneapolis, Minn.
780563. Eye irrigator. Frank E. Girard, Toledo, Ohio.
780948. Opticians' frame gage. *John H. Hales, Newport* News, Va.
780619. Morphin compound and making same. Robert Pschorr, Berlin, Germany.
780831. Shoulder brace and support. Annie Stinton, North Williamstown, Victoria, Australia.
781328. Invalid and operating table. Egbert B. Brown, Maywood, Ill.
780987. Bedpan. George E. Gorham, Albany, N. Y.
780988. Fracture apparatus. George E. Gorham, Albany, N. Y.
781516. Respirator and inhaler. George N. Guthrie, Jr., Cookville, Tenn.
781142. Woven surgical bandage. Theodore W. Hanrath, Chicago.
781283. Hypodermic power syringe. *Frank A. Higgins,* Bellevue, Ohio.
781428. Inhaler, injector and medicator. Sheridan J. and L. A. Hutchins, St. Paul, Minn.
781544. Combination shoulder and body brace with attachments. Tillman E. McMurtry, Chicago.
781363. Making medicaments containing plant juice. Marie Ritter, Breslau, Germany.
781555. Movement cure device. Alfred B. Schanz, Attica, Ind.
781627. Lung-testing machine. Joseph D. Wolf, Beaver, Pa.
782108. Apparatus for administering anesthetics. Raymond C. Coburn, Upper Sandusky, Ohio.
781818. Disinfecting apparatus. Eugene Fournier, Paris, France.
782021. Sterilizing water by means of ozonized air. Hjalmar Friberg, Charlottenberg, Germany.
781683. Combined apparatus for exercising and massaging by friction. George H. Shepherd, Paris, France.
781860. Pasteurizing apparatus. Walter B. Wright, Chicago.
782433. Temperature indicating spoon. Harrison E. Ashley, New Bedford, Mass.
782723. Hypodermic syringe. Milton Campbell, Philadelphia.
782747. Inhaling device. Arthur Goldstaub, Hamburg, Germany.
782663. Massage apparatus. Johannes C. Johansen, Copenhagen, Denmark.
782400. Apparatus for hygienic and therapeutical purposes. Jean M. A. Lacome, New York.
782800. Hypodermic syringe. Frederik W. Steuer, Plainfield, N. J.
782303. Sterilizing apparatus. Wm. J. Winchel and J. H. Whaley, Rome, N. Y.

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Original Articles.

CLINICAL EXAMINATION OF THE URINE.

A CRITICAL STUDY OF THE COMMONER METHODS.

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BOSTON.

In 1897 Councilman[1] wrote, in a paper on "Acute and Subacute Nephritis": "The chemical and microscopic examination of the urine, important as it is, does not give any sure information as to the character of the (renal) lesions."

Reflecting on this remark and recalling various discrepancies between antemortem and postmortem diagnosis in renal cases that have come under my observation, it seemed to me worth while to compare systematically the urinary records and postmortem findings in all the cases of acute and chronic nephritis that have come to autopsy at the Massachusetts General Hospital since 1893. The results of this work form the bulk of the present paper.

The group of cases examined excludes all suppurative diseases in or near the kidney, and includes, for the sake of comparison, some conditions in which the urine is more or less like that of nephritis.

Since the histologic lesions found postmortem have been the basis of the nomenclature used throughout, I append a brief statement of the appearances to which each name refers:

Following in a general way the views of Councilman, cases were classified as:

1. *Acute degeneration* of the kidney when the lesions are confined to the epithelium (albuminous, hyaline and fatty degeneration, or complete necrosis), without other lesions of the glomeruli, vessels or connective tissue.

2. *Acute glomerular nephritis*[2] applies to cases in which, besides a varying amount of degenerative lesions, well-marked exudative or proliferative changes are found in the glomeruli. When exudative lesions predominate the capsule spaces contain serum, fibrin or blood, while the capillaries are filled with thrombi or polynuclear leucocytes.

When proliferative lesions predominate, the cells lining Bowman's capsule or those lining the glomerular capillaries are greatly increased in number and collect in the capsular space or in the lumina of the capillaries.

In cases in transition to subacute or chronic forms, some of the glomerular vessels are obliterated by hyaline degeneration of the cells occluding them.

3. *Subacute glomerular nephritis* refers to proliferative glomerular lesions of somewhat greater duration. The glomerulus is usually lobulated and its capsular epithelium proliferated. The capillaries are partially obliterated by hyaline thickening of the basement membrane surrounding them.

4. *Chronic glomerular nephritis* is conceived as the end-stage of the acute or subacute cases. The glomeruli show extensive sclerosis with obliteration of the capillaries in some portion of the organ, while less advanced (acute or subacute) lesions are seen in other portions. As in all forms of glomerular nephritis, degenerative tubular lesions are usually present.

5. Under the name of *chronic interstitial nephritis* are grouped those cases in which the lesions appear to originate not in the glomeruli but in the connective tissue and blood vessels. Irregular bands of hypertrophied connective tissue produce secondary atrophy of the glomeruli and degeneration of the tubular epithelium. The arteriosclerotic changes usually found in the vessels are not the predominating lesion.

6. By *amyloid nephritis* is meant a form of chronic glomerular nephritis in which the capillaries are infiltrated with amyloid.

7. By *senile atrophy* is meant a process identical in histologic structure with that defined as "chronic interstitial nephritis," but involving a relatively small portion of the kidney substance with relatively large areas of normal tissue intervening.

8. *Arteriosclerotic atrophy* refers to a condition similar to that just described but with the chief lesion in the blood vessels.

9. *Fatty degeneration* refers in this paper only to the comparatively rare cases in which the lesion is very marked. The slight degrees of fatty metamorphosis often seen in this series in association with acute (albuminous) degeneration are not here separately considered.

In studying this group of lesions, I began by picking out from the record of autopsies made by Dr. James Homer Wright since 1893, all cases in which any one of the above conditions was found at autopsy.* I then looked up the clinical records with special reference to the urinary analysis and compared them with the anatomic lesions.

Next, I selected from the autopsy records all cases in which macroscopic and microscopic examination revealed nothing abnormal about the kidneys, and sought to find out from the clinical record whether the kidneys had seemed so blameless before death as they appeared to be at the autopsy. Briefly stated, the two questions investigated were:

1. When an anatomic lesion is found postmortem, how often is that lesion evident from the urine in life?

2. When no anatomic lesion is found postmortem, how often is the urine normal?

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[1] Councilman: Medical and Surgical Reports of the Boston City Hospital, 1897.

[2] No cases of acute interstitial (non-suppurative) nephritis are included in the series on which this paper is based.

* Dr. Wright has recently looked over the sections from most of these cases and verified the diagnoses.

ACUTE GLOMERULAR NEPHRITIS.

Of the 21 cases recorded in Table 1, only five were diagnosed as nephritis during life, and not one was recognized as acute nephritis. Of the 5 diagnosed as nephritis, 3 were called chronic diffuse nephritis and 1 chronic interstitial nephritis. In other words, there was some discrepancy between the antemortem and postmortem findings in 93 per cent. of the cases, while in 75 per cent. the diagnosis of nephritis was not made at all during life.

TABLE I.—ACUTE GLOMERULAR NEPHRITIS.

Case No.	Autopsy No.	Anatomic Diagnosis.	Clinical Diagnosis.	Urine.					Otherclinical signs of nephritis.
				24-hour amt.	Specific gravity.	Albumin, per cent.	Urea, per cent.	Sediment.	
1	919	Acute glomerular nephritis. Cardiac hypertrophy and dilatation.	Subacute glomerular nephritis.	1000 c.cm.	1014	0.2	1.5	Rare hyaline casts. Numerous normal and few abnormal red cells.	Uremic convulsion.
2	915	Acute glomerular nephritis. Ulcerative endocarditis. Cardiac hypertrophy and dilatation.	....	(?)	101	⅔	1.1	Rare hyaline casts with cells adherent. Rare red corpuscle, much pus.	None.
3	868	Acute glomerular nephritis. Streptococcus septicemia.	Vesical calculus......	850 c.cm. average	1025	¼	....	Pus, blood and triple phosphate. No casts.	None.
4	810	Acute glomerular nephritis. Mitral stenosis. Cardiac hypertrophy and dilatation. Chronic passive congestion.	Mitral stenosis.......	850 c.cm. average	1017 Average	Slight trace.	....	Few hyaline and granular casts with occasional cell adherent.	None.
5	631	Acute glomerular nephritis. Arteriosclerosis. Chronic endocarditis. Aneurism of iliac artery.	Aneurism of iliac artery.	....	1023	Slighest possible trace.	....	Few hyaline and granular casts with an occasional cell adherent.	None.
6	626	Acute glomerular nephritis. Pulmonary abscess. Fatty liver.	Cirrhosis of liver.....	....	1015	¼-½	....	Few hyaline and coarse granular casts. Bile-stained cells.	Convulsions, delirium.
7	621	Acute glomerular nephritis. Acute cystitis. Fatty liver.	Alcoholism............	....	1013	Very slight trace.	....	Very rare hyaline casts.......	None.
8	608	Acute glomerular nephritis. General purulent peritonitis.	General peritonitis from pus tube. Pyemia. Dry pleurisy.	(?)	1011	Slightest possible trace.	....	Occasional hyaline and granular casts, considerable pus.	None.
9	597	Acute glomerular nephritis. Syphilitic hepatitis. Portal vein thrombosed.	Cirrhosis of liver, hematemesis.	(?)	1014	Slightest possible trace.	....	No casts. Rarely an abnormal red blood cell.	None
10	543	Acute glomerular nephritis. Bronchopneumonia. Streptococcus septicemia.	Chronic diffuse nephritis.	600 c.cm.	1008 to 1031 Average 1019	0.3 to 1.5	1 Average.	Hyaline and fatty casts numerous, few brown granular and epithelial casts	Anasarca.
11	530	Acute glomerular nephritis. (Not typical.) Thyroid adenoma. Bronchitis.	Exophthalmic goiter terminal infection.	1000 c.cm.	1012	Slighest possible trace.	....	No casts. Much pus. Rare red cell.	None
12	529	Acute glomerular nephritis. Streptococcus septicemia. Arteriosclerosis.	Chronic interstitial nephritis. Acute pericarditis. Arteriosclerosis.	85 c.cm.	1020	Very slight trace.	2.5	Many hyaline and granular casts. Few brown granular and blood casts. Many cells and red corpuscles on casts.	*General* anasarca.
13	511	Acute glomerular nephritis. Cardiac hypertrophy and dilatation. General chronic passive congestion.	Aortic and mitral disease.	400 to 1600 c.cm. average 760 c.cm.	1013 to 1026 Average 1019	Trace increasing to ½	16 grams average.	Many hyaline casts with cells and fat adherent.	None.
14	369	Acute glomerular nephritis. Aortic regurgitation. General passive congestion.	Malignant endocarditis.	1150 c.cm. average	1017	Trace.	....	Hyaline and granular casts with considerable fat and a few cells and blood globules adherent.	None.
15	353	Acute glomerular nephritis. Typhoid fever.	Typhoid fever.........	....	1024	0.1	10 grams.	Many brown granular casts, some with cells adherent.	None.
16	335	Acute glomerular nephritis. Acute and chronic endocarditis.	Malignant endocarditis.	....	1017	¼	....	Few hyaline and granular casts, some with renal cells adherent. Few abnormal red corpuscles.	None.
17	258	Acute glomerular nephritis. Acute chronic endocarditis. Hypertrophy and dilatation	Chronic endocarditis. Broken compensation.	....	1031	½	1.25	Much pus. Many hyaline and fine granular casts of all sizes, some with epithelium adherent.	None.
18	255	Acute glomerular nephritis. Septic endocarditis and meningitis.	Pneumonia. Septic endocarditis. Pneumococcemia.	900 c.cm. average	1015 and 1020	0-1 and ⅛	2.45	Many hyaline, fine and coarse granular casts of all diameters with blood cells and a little fat adherent.	None.
19	192	Acute glomerular nephritis. Acute endocarditis. Cardiac hypertrophy, dilatation.	Chronic diffuse nephritis. Chronic endocarditis.	900 c.cm.	1016	¼	1.5	Many epithelial and brown granular casts. Few hyaline and blood casts, and fatty casts.	One convulsion, edema of face.
20	65	Acute glomerular nephritis. Sarcoma of chest. Pleurisy.	Sarcoma of *neck and* chest.	....	*1021*	0.1	....	*Few hyaline granular casts* with occasional cell adherent, normal blood.	None.
21	60	Acute glomerular nephritis. Universal eczema. Tuberculous enteritis.	Uremia...............	Much diminished.	1027	1	0.5	Many casts of all kinds. Much blood.	Anasarca, vomiting.

Who is to blame for this?

The urinary analyses were made with care by men well trained in the art, for it has long been true that graduates of the Harvard Medical School trained under Prof. E. S. Wood always know how to examine urine, even when they know little else. In many cases the analyses were made by Professor Wood himself. There is no reason to attribute the 75 per cent. of diagnostic failures to incompetence on the part of the internes.

Could the diagnoses have been correctly made if these analyses had been properly interpreted? I think not. A study of the data recorded in Table 1 and a comparison of these data with cases showing postmortem the lesions of passive congestion or of arteriosclerotic atrophy will reveal that there are no essential nor characteristic features about the urine in some of the cases of acute glomerular nephritis. Indeed, some kidneys that showed no lesions at all postmortem were associated with urinary abnormalities as great as any in Table 1. (See Table 8.)

The amount of albumin was .5 per cent. or more (Esbach) in 6 cases (or 28 per cent.), .1 per cent to .25 per cent. in 7 cases and only a trace in 8; in other words, it varied between wide limits and no rule is apparent.

The specific gravity is below 1,020 in 13 cases and above it in 8. The 24-hour amount was always reduced, but not more so than in many other diseases.

Casts were absent in 3 cases, scanty in 9, and abundant in 8. No single type predominated except the hyaline variety, which is the least distinctive or significant of all. Blood in considerable quantity (i.e., more than a single corpuscle here and there,) was present in but 2 cases.

Dropsy was present only in the 5 cases rightly diagnosed and in 2 others in which uncompensated mitral disease was found. Uremic symptoms were present in none of the unrecognized cases.

I am convinced, therefore, that the failure to anticipate during life that an acute glomerular nephritis would be found postmortem was due, not to any avoidable error or omission on the part of those in charge of the cases, but to a lack in our diagnostic resources. The chemical and microscopic examination of the urine is often insufficient, even when taken in connection with all the available clinical data, to tell us whether acute glomerular nephritis is present or not.

Acute glomerular nephritis, as defined above, not infrequently exists without any distinctive clinical manifestations, either in the urine or elsewhere.

That there are many cases of acute glomerular nephritis which can be recognized during life I do not for a moment intend to deny, but it appears to be the fact that some are unrecognizable. Further, since so many cases get well and so many of the fatal ones do not come to autopsy, we have no way of estimating whether the recognizable cases make up a large or a small percentage of the total number that exist. Were the scanty, bloody urine of the text-books a constant feature in acute glomerular nephritis, our task would be a simple one. but the text-book picture was not present in any one of this small series of cases. I have often seen scanty bloody urine in postscarlatinal nephritis and in the acute exacerbations of chronic cases, but though its presence is very helpful in diagnosis, its absence does not mean the absence of acute glomerular nephritis, as this series shows.

A point of interest in this series of cases is the presence of generalized streptococcus or pneumococcus infection, recognized postmortem in 4 of them, and the association of 2 others with an acute endocarditis which may very possibly have been due to the pneumococcus.

SUBACUTE GLOMERULAR NEPHRITIS.

In the cases classified postmortem as "subacute glomerular nephritis," the disagreements with the clinical findings have been fewer. Five out of 10 cases were recognized antemortem as belonging to the general class—"nephritis." One was called acute nephritis, 1 chronic glomerular nephritis, 1 interstitial nephritis, and in the 2 remaining (one an eclamptic case) the type is not specified. The 5 unrecognized cases are indexed in hospital records as follows: Gallstones, actinomycoses (ribs), sloughing uterine fibroid, acute endocarditis, and pneumonia with alcoholism.

TABLE II.—SUBACUTE GLOMERULAR NEPHRITIS.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.				
				24-hour amount.	Specific gravity.	Albumin, per cent.	Urea. per cent.	Sediment.
1	44	Subacute glomerular nephritis with chronic interstitial nephritis.	Chronic glomerular nephritis.	Anuria practically	1036	½	....	Very numerous casts of all varieties.
2	62	Subacute glomerular nephritis.	Acute nephritis......	1850 c.cm. average.	1012	¼	31 grams.	Many hyaline and granular casts with few fat drops, blood corpuscles, or cells adherent. Few epithelial and waxy casts. Much normal and abnormal blood.
3	281	Subacute glomerular nephritis with passive congestion.	Mitral regurgitation nephritis.	400 to 600 c.cm.	1011 to 1028.	¼ to 1	20 grams average.	Many hyaline, granular and blood casts with cells and fat adherent. Few waxy casts.
4	330	Subacute glomerular nephritis with suppurative nephritis.	Gallstones.	950 c.cm. average.	1011	Trace to 0.1	1.5	Many epithelial and fatty casts; some with blood adherent.
5	378	Subacute glomerular nephritis.	Nephritis; eclampsia	1000 c.cm.	1022	¼ to ½	....	Many hyaline, granular and brown granular casts with occasional cell adherent.
6	470	Subacute glomerular nephritis. Actinomycosis.	Actinomycosis.......	....	1027	Slightest possible trace.	....	Few hyaline and granular casts.
7	472	Subacute glomerular nephritis with arteriosclerosis.	Sloughing uterine fibroid.	....	1012	⅛	....	Few hyaline granular casts.
8	511	Subacute glomerular nephritis. Pneumonia.	Pneumonia. Alcoholism.	....	1016	0.1	....	Fine granular and brown granular casts with an occasional cell adherent.
9	538	Subacute glomerular nephritis.	Chronic interstitial nephritis with acute exacerbation.	600 to 1400	1015 average.	0.2 average.	14 grams average.	Hyaline, granular, brown granular, epithelial and blood casts; rarely a fat drop adherent.
10	773	Subacute glomerular nephritis. Slight.	Endocarditis.	1500 average.	1023 average.	(?)	20 grams average.	Many hyaline, granular, epithelial fatty and waxy casts.

If we turn from the question, What diagnosis was actually made? and ask, What diagnosis ought to have been made? in these unrecognized cases, we find no sufficient reason to blame the clinicians except in one case (No. 10), in which nephritis might certainly have been suspected. In the others the urines, to be sure, are not normal, but neither do they present any abnormality greater in degree or different in kind from that often found in fever urines; i. e., in febrile diseases such as were present in these cases, pneumonia, gallstones, etc. If we compare these urines with some of those recorded in Table 8, which represents cases in which no appreciable lesions could be found after death, we must acknowledge that there is no considerable difference except in the single case above referred to. In this case, the urinary anomalies are, indeed, quite marked, but here, as if by the irony of fate, we note that the postmortem record reads: "*Slight* capsular glomerular nephritis," while in case 6 of this series the lesions postmortem were much more marked, although the urine indicated a milder process.

On the whole, although in these cases of subacute glomerular nephritis the discrepancies between antemortem and postmortem findings are not so glaring nor so numerous as in the acute cases, yet, since half the cases were not diagnosed during life, we can not feel very proud of our ability to recognize this type of nephritis.

CHRONIC GLOMERULAR NEPHRITIS.

The picture is much brighter when we turn to the group of 17 cases in which chronic glomerular nephritis was found postmortem; here we find almost no mistakes in diagnosis. Only in 2 cases was the nephritis unsuspected, and in the 13 of the remaining 15 cases the pe of disease was correctly stated as well. One may ubt, however, whether the urinary examination alone would have been sufficient to steer us aright. The correct diagnosis, as it stands in the records, may well have depended as much on the other clinical features—the pale, pasty face, the long-standing general edema and the uremic manifestations.

TABLE III.—CHRONIC GLOMERULAR NEPHRITIS.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.				
				Average 24-hr. amt. of urine.	Specific gravity.	Albumin. per cent.	Urea.	Sediment.
1	31	Chronic glomerular nephritis.	Chronic glomerular nephritis.	1400 c.cm.	1020	⅛-½	1.01%	Many hyaline, fatty and blood casts.
2	220	Chronic glomerular nephritis.	Chronic glomerular nephritis.	400 c.cm.	1017	½-1	13.5 grams.	Many hyaline, fatty and blood casts, some with cells adherent.
3	290	Chronic glomerular nephritis.	Chronic glomerular nephritis. *Chronic diphtheritic colitis.*	....	1011	¼+	....	Many hyaline, fatty and blood casts, and waxy casts.
4	492	Chronic glomerular nephritis.	....	....	1008	⅛	....	Occasional granular casts with cells adherent.
5	534	Chronic glomerular nephritis.	Chronic glomerular nephritis.	480 c.cm.	1013	¼	1%	*Brown granular, epithelial, fatty,* hyaline and waxy casts.
6	663	Chronic glomerular nephritis, with hepatitis, etc.	Chronic hepatitis..........	690 c.cm.	1012 1016	Trace to 0.1	1.39%	Occasional hyaline and granular casts with blood, fat cells adherent. Few fibrinous casts.
7	676	Chronic glomerular nephritis.	Chronic glomerular nephritis. (Sec. atrophy).	330 c.cm.	1013	⅛	3.6 grams.	Rare hyaline and granular casts with fat or cells adherent.
8	699	Chronic glomerular nephritis.	Chronic glomerular nephritis. (Sec. atrophy).	678 c.cm.	1010	Slight trace.	3 to 6 grams.	Rare hyaline and granular casts with fat adherent. Few waxy casts.
9	701	Chronic glomerular nephritis.	Chronic interstitial nephritis.	900 c.cm.	1008	0.2	14 grams.	Same as last case.
10	711	Chronic glomerular nephritis.	Chronic glomerular nephritis.	1200 c.cm.	1012	0.1	8.7 grams.	1st examination, rare granular casts. 2nd examination, no casts.
11	775	Chronic glomerular nephritis.	Aortic regurgitation, anemia.	840 c.cm.	1012	⅛	10.6 grams.	Few hyaline and granular casts.
12	779	Chronic glomerular nephritis.	Chronic glomerular nephritis.	900 to 2000	1011	⅛	13 grams.	Hyaline, granular, fatty, cellular, blood, and waxy casts.
13	168	Chronic glomerular nephritis.	Chronic glomerular nephritis.	Not estimated (coma).	1010	¼	....	Occasional hyaline and granular. Some cells, occasional fat, occasional blood casts. Occasional hyaline, granular, fatty and blood casts; a few with cells adherent.
14	139	Chronic glomerular nephritis. (Slight). Secondarily contracted kidney.	Chronic nephritis..	2700 c.cm.	1008	0.16⅔	0.63%	Granular epithelial and fatty casts.
15	811	Chronic glomerular nephritis.	Chronic glomerular nephritis.	350 c.cm.	1010	0.2	3.6 grams.	At times none. At other times fairly numerous hyaline, *granular* and waxy casts. No fat in six weekly examinations. Dropsical and uremic manifestations marked.
16	883	Chronic glomerular nephritis.	Chronic glomerular nephritis.	1200 c.cm.	1013	⅛	1.9%	Few hyaline, fine and coarse granular casts. Signs as above.
17	915	Chronic glomerular nephritis.	Chronic glomerular nephritis.	650 c.cm.	1022	1.5	10 grams.	Many hyaline, granular, fatty and waxy casts.

Urines as highly albuminous, as lacking in urea, as thickly sown with fatty elements (free and on casts) have occurred in various other conditions mentioned in other parts of this paper. (See Tables 7 and 8.)

Yet, on the whole, the success in the diagnosis of this type of case is in striking contrast with the large percentage of failures in other forms.

CHRONIC INTERSTITIAL NEPHRITIS.

Out of the 35 cases classified under this heading at autopsy, 19, or about one-half, were recognized as nephritis of some type, and of these there were 5 in which the full title, chronic interstitial nephritis, appears on the antemortem record. In the remaining 14 cases recognized as nephritis of some type, the diagnosis was chronic glomerular nephritis in 8, while 3 others are recorded simply as arteriosclerosis, 1 as cardiorenal, and 2 as uremia.

In the 16 unrecognized cases the diagnoses were very varied; pernicious anemia, phthisis, epidemic cerebrospinal meningitis, sarcoma of lung, typhoid, cerebral hemorrhage (2 cases), valvular heart disease, cirrhosis of the liver, and cancer of the bladder are some of them.

I have included among the 19 successfully diagnosed cases 3 in which the diagnosis stands arteriosclerosis, because, in the terminology of some, this term is used in a wide sense so as to include renal anomalies which others would call chronic interstitial nephritis.

It should further be noted that in the postmortem record of 4 of the 16 cases not recognized during life, the lesion is expressly stated to be slight, and that in 3 more it was unilateral with a hypertrophied kidney on the other side. If we leave out these 7 cases, as I think we should, the failures are reduced to 9, or 32 per cent., as against 19, or 68 per cent., of successes.

It appears, then, that we were right about two-thirds of the time in this (brief) series, and in the remaining one-third the patients were under observation for so short a time that the failure of diagnosis is relatively venial.

On the whole, the urine of the cases proved at autopsy to be of the chronic interstitial type is fairly like the text-book accounts. Albumin was absent in 3 cases and very scanty in 13 cases. In the remaining 22 cases, about two-thirds of the whole series, it ranged from a large trace to .7 per cent.; in 5 cases out of the 35 it reached .25 per cent. or more.

TABLE IX —CHRONIC INTERSTITIAL NEPHRITIS

Case No	Autopsy No	Anatomic diagnosis	Clinical diagnosis	Average Urine					Remarks
				24 hour amount	Spec grav.	Albumin, per cent	Urea	Sediment	
1	1136	Chronic interstitial nephritis Hypertrophied prostate and double hydronephrosis	Arteriosclerosis Angina pectoris	650 c cm	1011	Trace	1%	Few hyaline and granular casts Occasional red corpuscles	
2	1104	Chronic interstitial nephritis Pernicious anemia	Pernicious Anemia	*1100 c cm*	1007 1009 1009	0 0 0	1.1%	No casts	
3	1069	Chronic interstitial nephritis Nephrolithiasis	Ulcer of foot Myocarditis	850 c cm	1013	Trace		No casts	
4	1022	Chronic interstitial nephritis Bronchopneumonia	Chronic glomerular nephritis Arteriosclerosis	1500 c cm	1008	0.1		Few hyaline and granular casts some with renal cells adherent	
5	1005	Chronic interstitial nephritis (Slight) Cerebral hemorrhage	Cerebral hemorrhage		1011	1.6	0.6%	Rare hyaline and granular casts	
6	998	Chronic interstitial nephritis Pneumonia	Chronic interstitial nephritis Pneumonia	1000 c cm	1013	Slight trace	2%	No casts	
7	974	Chronic interstitial nephritis (Slight) Sarcoma of shoulder and lung	Sarcoma of shoulder		1015	0	0	None	
8	904	Chronic interstitial nephritis General tuberculosis	Cirrhosis of the liver Myocarditis	750 c cm	1015	Trace	5 grams.	Few hyaline and fine granular casts	
9	866	Slight chronic interstitial nephritis Pneumonia		1500 c cm	1015	Slight *trace*		Occasional hyaline and granular casts, with cells or blood adherent	
10	862	*Chronic interstitial* nephritis Cerebral hemorrhage	Cerebral hemorrhage			¼		Many hyaline and granular casts with fat and blood adherent	
11	840	Chronic interstitial *nephritis* Unilateral (stone) Duodenal ulcer	Crushed shoulder		1007	Slight trace		Rare hyaline and granular casts	
12	834	Chronic interstitial nephritis	Chronic glomerular nephritis	450 c cm	1014	0.1	5 grams	Rare hyaline and granular casts, one or two with fat adherent	Marked nocturnal polyuria 3 to 4 quarts before *entering* hospital
13	827	Chronic interstitial nephritis pyelonephritis Cystitis	Cerebral embolism	1650 c cm	1016	Slightest possible trace		No casts *Much pus*	
14	825	Chronic interstitial nephritis Cerebral hemorrhage	Chronic interstitial nephritis	850 c cm	1012	Slight trace	17 grams	Few hyaline and granular casts, with occasionally a cell adherent	Nocturnal polyuria, retinal *hemorrhages*
15	821	Chronic interstitial nephritis Syphilitic hepatitis	Chronic interstitial nephritis	1800 c cm	1012	Slightest possible trace	27 grams	Rare casts, at times (hyaline and granular) At other times none	
16	818	Slight chronic interstitial nephritis Cerebral hemorrhage	Cerebral hemorrhage		1020	⅛		Many hyaline and finely granular casts	
17	787	Unilateral chronic interstitial nephritis Cystitis, pyelonephritis	Arteriosclerosis Pyelonephritis, cystitis	670 c cm	1028	Trace		Few hyaline granular, blood and epithelial casts	
18	777	*Slight* chronic interstitial nephritis Phthisis	Phthisis		*1021*	*0*		Negative	
19	770	Unilateral chronic interstitial nephritis	Ulcerative colitis	1	1020	Slightest possible trace	8 grams	No casts	
20	764	Chronic interstitial nephritis Aortic stenosis	Uremia		1009	Large trace		No casts	Coma, no paralysis
21	643	Unilateral chronic interstitial nephritis Typhoid pneumonia	Typhoid	1300 c cm	1020	Slightest possible trace		Numerous hyaline, fine coarse granular casts, some with cells adherent	
22	636	Chronic interstitial nephritis	Chronic glomerular nephritis	1000 c cm	1020	⅛	2.9%	Many hyaline and fine granular casts, with occasional cell adherent	Delirium
23	522	Chronic interstitial nephritis	Cancer of bladder Pyelitis		1012	¼	0.8%	No casts	
24	496	Chronic interstitial nephritis	Mitral regurgitation	2000 c cm	1010	⅛	1.4%	Few hyaline and granular casts	
25	453	Chronic interstitial nephritis	*Chronic* glomerular nephritis	1600 c cm	1012	¼	0.8%	Rare hyaline or granular casts, with blood, fat or cells adherent	
26	304	Chronic interstitial nephritis	Delirium tremens Uremia	600 c cm	1010	½	1%	Very few granular casts with fat and fatty cells adherent	
27	298	Chronic interstitial nephritis	Chronic interstitial nephritis	*1000 c cm*	*1009*	0.1	*12 grams*	Rare hyaline and granular casts	
28	289	Chronic interstitial nephritis	Cardiorenal	1400 c cm	1021	¼	15 grams	Many hyaline casts with blood, fat and cells adherent	
29	280	Chronic interstitial nephritis	Chronic glomerular nephritis	1200 c cm	. 1013	⅛	1.3%	Rare hyaline and granular cast with occasional cells *or fat drops adherent*	
30	265	Chronic interstitial nephritis	Chronic glomerular nephritis	1000 c cm	1015	0.2	14 grams	Much fat adherent to hyaline granular and waxy casts, also some blood, cells and brown granular debris on casts	
31	245	Chronic interstitial nephritis	Arteriosclerosis	2000 c cm	1020	0.16%		Few pure hyaline casts	
32	233	Chronic interstitial nephritis	Chronic interstitial nephritis	853 c cm	1012	0.1	12 grams	No casts in three examinations Rare cast with fat adherent at one examination	
33	231	Chronic interstitial nephritis	Cerebrospinal meningitis		1026	⅛	2.2%	Few granular casts with cells adherent	
34	174	Chronic interstitial nephritis	Chronic glomerular nephritis	1000 c cm	1030	Slight trace		Numerous hyaline, granular, blood, fatty and epithelial casts	
35	161	Chronic interstitial nephritis with endocarditis	Chronic glomerular nephritis with endocarditis	1100 c cm	1112	0.1	1.2%	Many granular, brown granular epithelial, blood, fatty and waxy casts	

Casts were absent in 9 cases, and very scanty in 18 more, but in the remaining 8 cases, about one-fourth of the total, they were abundant. Hyaline or granular casts alone were found in 10 cases. In the remaining 25 cases, fat drops, red blood corpuscles or other cells were adherent to the casts. Fat drops and fatty casts were very abundant in 5, one-fourth of the cases. Waxy casts were mentioned in 2.

The specific gravity was persistently low in 24, or a little over two-thirds of the cases; in most of the others the presence of normal or high gravity could be accounted for by the coincident fever or other temporary disturbances.

Urea was low in some, but not lower than is frequently the case in many other diseases, not involving the kidney. We shall return to the discussion of the value of urea estimation in nephritic cases later in the course of this paper.

In connection with this series I wish to record a case of chronic polycythemia with splenic tumor, in which I watched the urine for over two years and found always the picture supposed to be characteristic of chronic interstitial nephritis, namely, increased 24-hour quantity, persistently pale color, low gravity, a slight trace of albumin and a few hyaline and granular casts. Yet, at the autopsy only chronic passive congestion was found.

TABLE V.—AMYLOID DISEASE.

Case No.	Autopsy No.	Age.	Cause.	Anatomic diagnosis.		Clinical diagnosis.	Date.	URINE.			
				Heart.	Kidney.			Spec. grav.	Albumin, per cent.	Urea, per cent.	Sediment.
1	74	27	Pott's disease.	Small.	Amyloid.	Pott's disease with chronic diffuse nephritis.	....	1006 1017	½	0.94	Hyaline, granular, fatty and waxy, coarse and brown granular casts.
2	78	42	Syphilis.	Small. 6th entry for this disease.	Amyloid.	Chronic parenchymatous nephritis.	....	1034 1025	⅓	2.6	Hyaline and granular casts, some with fat and cells adherent.
3	317	38	Syphilis.	325 grams.	Amyloid.	Laparotomy for fibroid.	Aug. 22. Aug. 29. Sept. 6. Sept. 7.	1015 1022 1013	No albumin. Trace. 0.2 1/6		None. (Died on 11th).
4	417	58	Syphilis.	Small, 215.	Amyloid.	Cancer of neck.	....	1017	½ ¾	1	Rare hyaline casts.
5	456	46	Syphilis.	288 grams.	Amyloid with terminal pneumonia.	Chronic diffuse nephritis.	....	1011	⅛ ½	6.5 grams. 17 grams.	One hyaline cast. Many granular casts with blood, cells and fat adherent.
6	691	45	Syphilis.	235 grams.	Amyloid. Streptococcus sepsis.	Chronic diffuse nephritis. (Opium).	....	1025 1026 1024	1.2 0.7	1.89	Many hyaline and granular casts, with fatty cells and blood adherent. Many epithelial and blood casts.

AMYLOID DISEASE.

Owing to the nature of the cases admitted to the Massachusetts General Hospital, where this work has been done, amyloid is a rare condition with us, only 6 cases occurring in 1,200 autopsies. In none of these cases was the diagnosis of amyloid kidney definitely made during life. Four of them were called chronic diffuse nephritis, and in these cases we think the diagnosis of amyloid ought to have been made evident antemortem, since there was a clear history of syphilis in 3 of them, and a long-standing spinal abscess in the fourth, while in none of the 4 was the heart enlarged. These facts, taken in connection with the presence of a long-standing, generalized edema and a urine showing evidence of some type of nephritis, ought, I think, to be sufficient to suggest, at least, the strong probability of amyloid kidney.

The urine itself was not in any way characteristic and varied a great deal in the different cases. One case showed but a small amount of albumin and no casts. In all the others the amount of albumin and the number of casts was large, no special varieties of casts predominating. The specific gravity was high in 2 cases, low in 2 and moderate in 2, while the total amount of urine and the percentage of urea showed no constant law.

CHRONIC PASSIVE CONGESTION.

Thirty-five cases were studied. The specific gravity was high in 18 (½) cases, low in 9 (¼), and within normal limits in 8 (¼). This is not in accordance with most text-book statements in which high gravity is laid down as a constant or nearly constant feature.

The total amount of urine in 24 hours was reduced in every case, except one, the case of chronic polycythemia referred to above.

Albumin was absent in 2 cases. Slightest possible trace in 5. Trace or slight trace in 14, large trace in 1. From .1 to .25 per cent. in 6; .25 to .5 per cent. in 4. Only in one-half of the cases, then, did the amount of albumin give any help in the differential diagnosis from nephritis.

Casts were abundant in 12, scanty in 11, and absent in 12. Hyaline, granular and epithelial casts make up the bulk of those found, but blood and fat on casts are also mentioned in 7.

Urinalysis may indicate the presence of nephritis when nothing but passive congestion is to be found at autopsy to account for it.

In most of these cases, the diagnosis is not difficult because there is so much evidence besides the urinary analysis to set us right. But were we dependent on the urine alone we could not possibly distinguish many of these cases from some type of nephritis, and, in fact, in two cases the diagnosis of nephritis was made. One of these, diagnosed antemortem as amyloid, might well have deceived the very elect, for there was a chronic phthisis to suggest amyloid and urinary anomalies fully as marked as in the cases of actual amyloid recorded.

(To be continued.)

Wild Licorice.—The bulk of the importations of licorice root are absorbed by tobacco manufacturers, who use it to flavor tobacco and snuff. According to the *Pharmaceutical Era*, sometimes large enough quantities of this flavoring are used to warrant the term *adulteration*. Most of the licorice grows wild in the Tigris and Euphrates valleys. The plants are regularly cut; in fact, the harvesting of licorice is almost an industry. The imperfect or crooked sticks are used for fuel, but the good ones are exported in large quantities, usually to England or America.

MODELS FOR TEACHING THE ANATOMY AND OPERATIVE TREATMENT OF INGUINAL HERNIA.

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Every teacher of surgical anatomy and operative surgery will no doubt agree with me when I say that it is exceedingly difficult for students and even for practitioners to comprehend the subject of inguinal hernia.

With a view of simplifying this subject, I have devised a model which is so constructed that it may be readily taken apart and transported.

For some years, Dr. E. Wyllys Andrews has employed a pillow covered with several layers of cloth of different colors to demonstrate his modification of the Bassini operation. The desirability of presenting the subject of hernia in a plain and easily comprehensible manner caused me to devise a frame on which the various layers of the abdominal wall would be represented by different colors of sweater cloth and muslin.

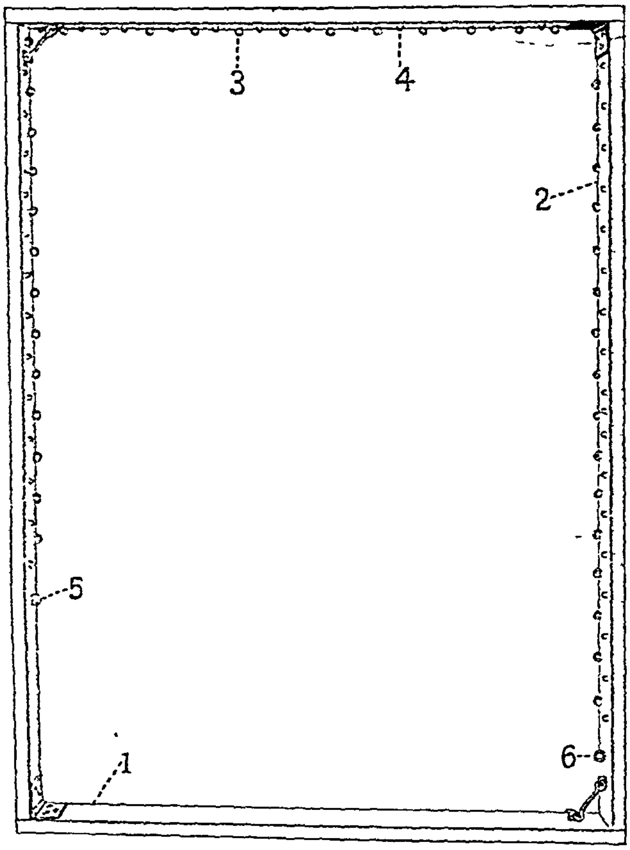

Fig. 1. Frame of the model. (1) Left or lower half of the frame. (2) Right or upper half of the frame. (3) Set of screw eyes placed well forward, but inside of frame, to which the external oblique is attached by means of hooks. (4) Set of eyes inserted into back portion of inner aspect of frame, to which the internal oblique and transversalis are attached together. (5) Screw eye, to which outer end of tape representing Poupart's ligament is attached. (6) Screw eye, to which outer end of tape representing Poupart's ligament is attached.

The advantages of my model are that it can be utilized to show all the constituents of the abdominal wall, both from the anterior and posterior aspects. It permits the teacher to give the student a conception of the anatomy of the inguinal region far more easily than any demonstration on the cadaver. I use both of these models, not only in the classroom, but to preface operations for inguinal hernia by showing the technic on one or both of the models. These demonstrations can be supplemented by the usual work on the cadaver and by demonstration on the living subject during the course of an operation for the radical cure of an inguinal hernia. During the last session of the American Medical Association at Atlantic City, I utilized these models to demonstrate my paper on the anatomy and radical cure of inguinal hernia before an audience of over four hundred persons, and I was assured by those sitting at some distance that every detail could be distinctly seen. At the request of many teachers of surgery who were present, I have decided to present this model to the profession, and can warmly recommend the adoption of these or of similar models in the teaching of the more difficult subjects of modern surgery.

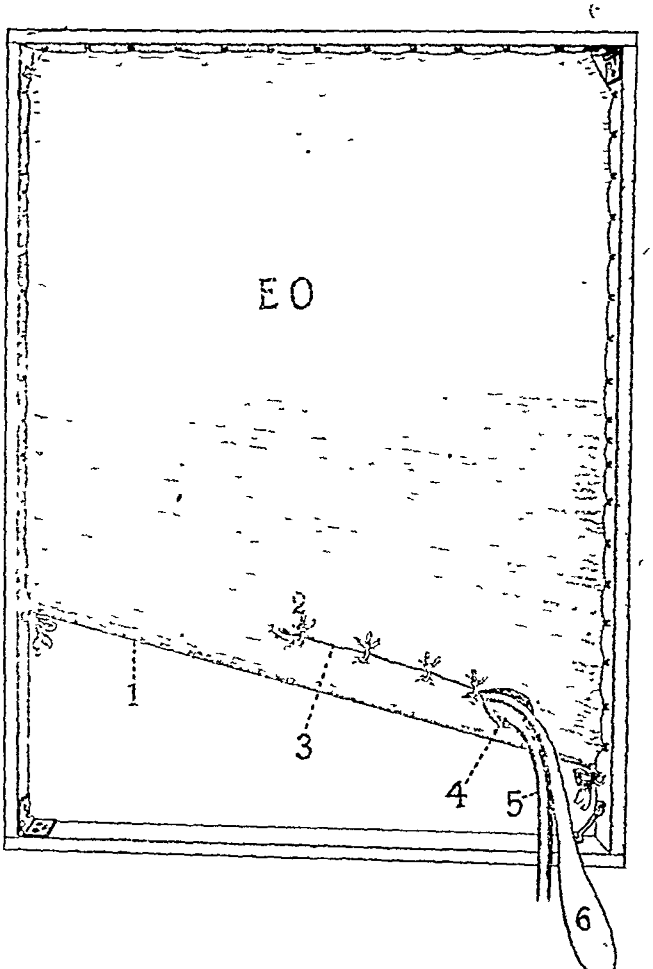

Fig 2. EO, white sweater cloth, with fibers running down and inward to represent the external oblique muscle (1) Tape representing Poupart's ligament, to which the external oblique is sewn along its entire sheath, and the internal oblique and transversalis to its outer half (Compare with Fig 3). (2) Silk sutures temporarily closing slit in the sweater cloth, representing external oblique; the edges have been hemmed so as to prevent fraying (3) Slit artificially made in the external oblique; edges hemmed to prevent fraying. The establishment of this slit saves cutting the external oblique aponeurosis every time the model is used, and, at the same time, the sutures (2), placed as they are in this figure, show the final step in the Bassini operation. (4) Opening in external oblique: edges hemmed to prevent fraying. This opening represents the external abdominal ring, through which may be seen emerging the spermatic cord (5), represented by heavy rubber tubing; and (6) the linen bag which increases in size towards its lower end, representing the sac of an inguinal hernia.

A reference to the description given with each illustration will perhaps explain more clearly than any amount of text the construction and practical workings of the two models.

The first model is shown in Figs. 1 to 10, inclusive, and is designed to give an anteroposterior view of the inguinal region. The frame consists of four strips of wood, 1 inch in thickness and 2 inches in width. The horizontal pieces are 36 inches long; vertical pieces 46 inches. One horizontal and one vertical piece are connected by means of a hinge, and all four are held together by means of hooks and eyes, seen at the lower right hand and upper left hand corners of the frame. Two sets of screw eyes are used, one placed close to the anterior portion of the frame (3 in Fig. 1), and the other inserted into the back portion of the inside of the frame. The abdominal muscles are made of sweater cloth, which can be obtained in any manufactory of sweaters and knit goods. This material can be obtained in any length, but the widest piece is only eighteen inches. In my own model the external oblique muscle was made of white sweater cloth, the internal oblique of red, and the transversalis of green.

Great care was taken to imitate, in sewing the pieces together, the natural course of the fibers of these muscles, as will be seen by a reference to Fig

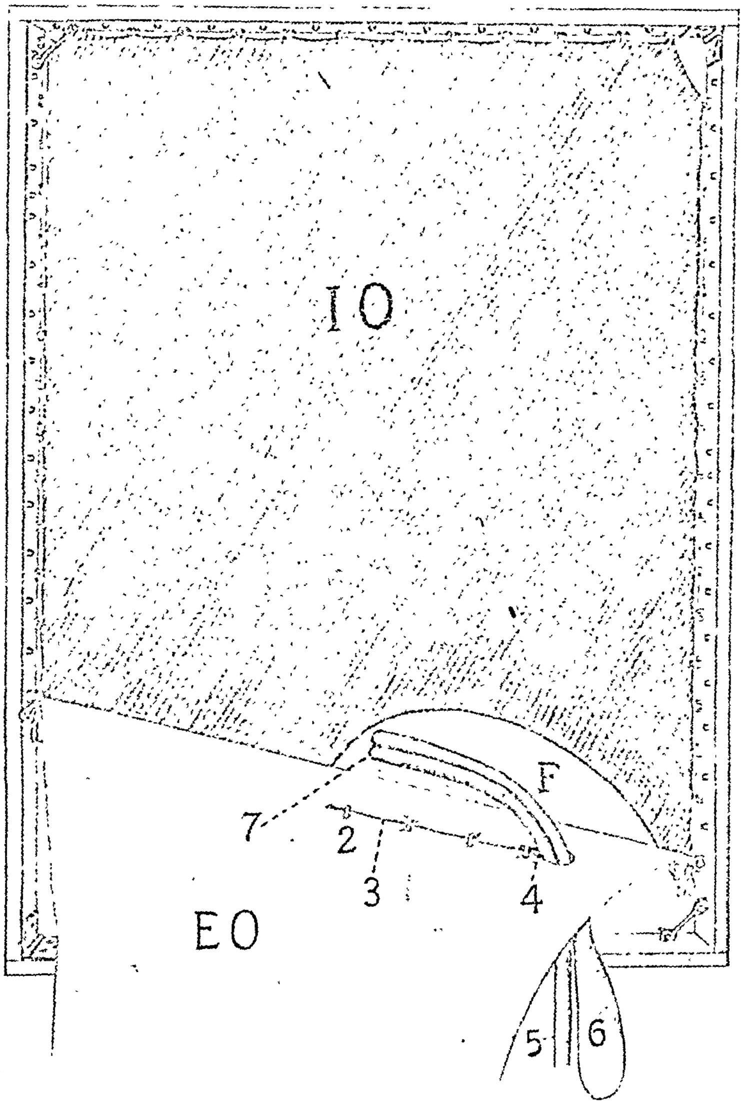

Fig. 3. IO, red sweater cloth, in which the fibers run up and inward to represent the internal oblique. EO, the external oblique, has been unhooked and allowed to fall so as to demonstrate the deeper muscles. (2) Four sutures closing the artificially made slit in the external oblique muscle, described in Fig. 2. (3) Slit referred to in Fig. 2. (4) External abdominal ring. (5) Spermatic cord. (6) Hernial sac made of linen bag, which increases in length from the external abdominal ring to its lower end. (7) Internal abdominal ring, represented by an opening made in F, the transversalis fascia.

A strong piece of tape is used to represent Poupart's ligament, the upper end being attached to the screw eye 5 in Fig. 1; the lower to 6, to represent the normal obliquity. To this strong tape all of the three layers of sweater cloth representing the abdominal muscles are sewn. In addition, a piece of tape is used to sew to the edge of each of the layers of sweater cloth representing the abdominal muscles, in order to prevent fraying.

The external oblique (E. O. in Fig. 2) has a separate set of hooks attached to the tape along its edge, so that it can be unhooked from the anterior set of screw eyes (3 in Fig. 1) and turned back, in order to demonstrate the deeper layers (Fig. 3).

A slit is cut in this external oblique (3 in Fig. 2), which represents the incision ordinarily made in this muscle to expose the canal prior to any of the modern operations except that of Kocher. The slit can be temporarily closed before using the model by means of four

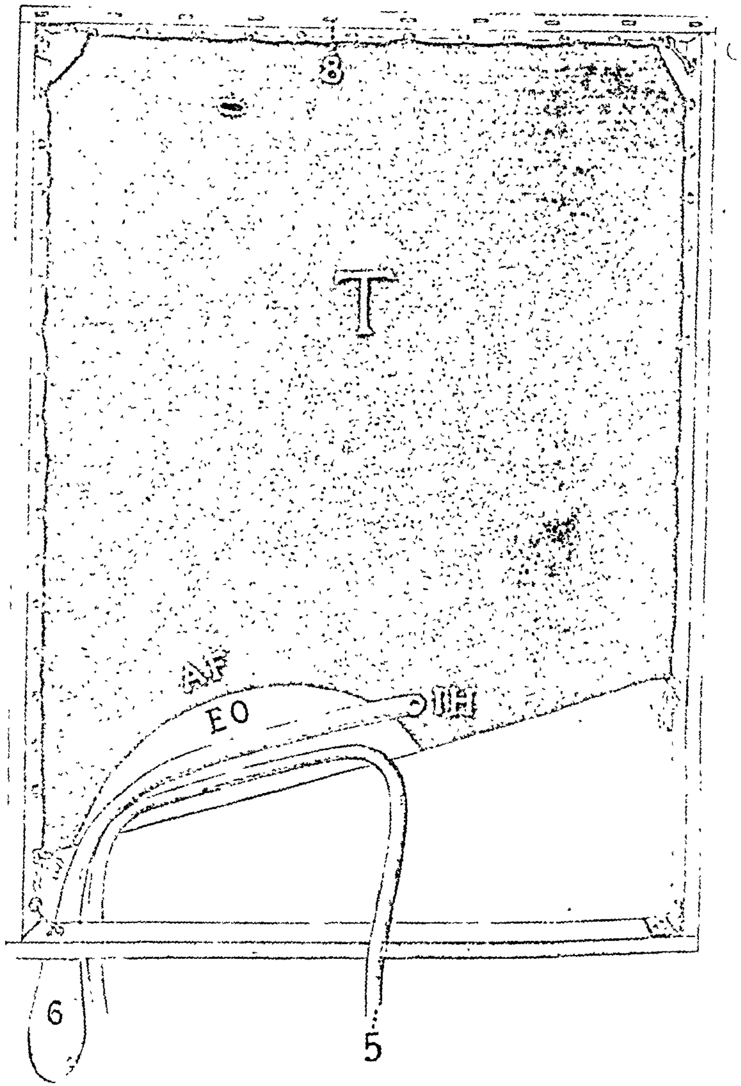

Fig. 4. Posterior view of model, with linen sheets representing peritoneum and transversalis fascia removed. T, green sweater cloth, with fibers running almost transversely, representing the transversalis muscle. IO, the internal oblique, and T, transversalis muscles, are sutured together along their edges and also to the outer half of the tape representing Poupart's ligament (Fig. 3). At the inner end of Poupart's ligament the student can get the idea of how these two muscles unite to form the conjoined tendon seen in this picture. AF represents the arching fibers of the transversalis. Those of the internal oblique are seen in Fig. 3. EO, external oblique aponeurosis, seen from its posterior aspect. IH, upper end of linen bag, representing hernial sac, the lower end of which is seen as 6. (5) Posterior end of rubber tube which represents spermatic cord as it descends toward the base of the bladder. If desirable, a number of pieces of colored ribbons can be made to accompany the hernial sac and rubber tube, representing the cord, in order to show the spermatic artery and veins. (8) Set of screw eyes inserted on posterior aspect of frame, to which the muslin sheets, representing the peritoneum and transversalis fascia (see Fig. 5), are attached.

sutures of ordinary twine or silk, which can be cut during demonstrations so that the edges of the external oblique from the external to the internal abdominal rings can be held apart (Fig. 7) by retractors or artery forceps.

The red sweater cloth is turned in at its lower edge from a point corresponding to the outer half of Poupart's ligament to a point close to its inner half, in order to represent the arching fibers of the internal oblique, beneath which the spermatic cord and hernial sac pass. The same treatment is given the inner half of the lower edge of the green sweater cloth, representing the transversalis muscle.

Into the posterior aspect of the upper horizontal piece of the frame a third set of screw eyes is inserted (8 in Fig. 4). To this set, two layers of heavy muslin, which can be sewn together at their upper end, are attached, in order to utilize the same set of hooks. The more anterior of these two represents the transversalis fascia (Fig. 6), and at a point corresponding to about the middle of Poupart's ligament an opening is made, which represents the internal abdominal ring. The most posterior of all the layers is the second muslin sheet, representing the peritoneum (Fig. 5). At a point opposite the internal abdominal ring the internal opening of the hernial sac can be made, and, if desirable, any substance which represents the intestines and omentum may be utilized to fill the hernial sac, in order to represent either an enterocele or an epiplocele, or both.

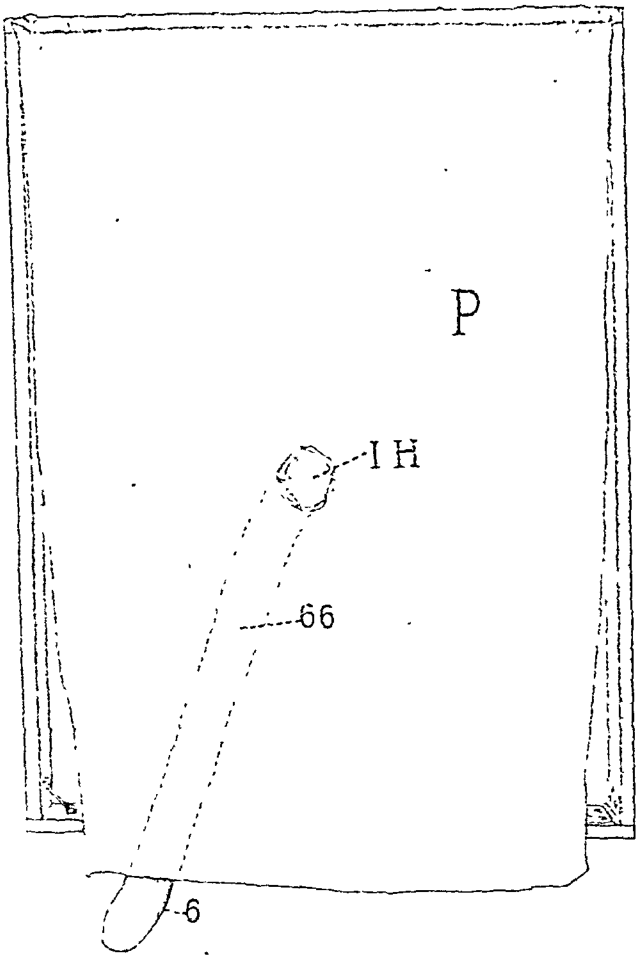

Fig 5 P, muslin or linen sheet, representing peritoneum, to which the transversalis is sutured at its upper border, and both sheets hung from a set of screw eyes (8), seen in Figs 4 and 6, and marked 8. IH, the opening artificially made opposite a point a little above the middle of Poupart's ligament, represents the inner opening of the hernial sac and marked IH. 66, hernial sac seen in outline. Its lower end seen below the frame as 6.

The hernial sac is hooked into little loops of thread at the edges of the opening in the peritoneum, so that it can be pulled away when the radical cure is demonstrated.

The spermatic cord is represented by a piece of the webbed rubber tubing which is sold with gas stoves, and the hernial sac by a long piece of muslin, which can be sewn in the form of a sac, increasing in size towards its lower end (6 in Fig. 7). The spermatic cord, or, rather, the tube representing it, can be allowed to drop between the transversalis fascia and the peritoneum, to show how it passes towards the bladder during life.

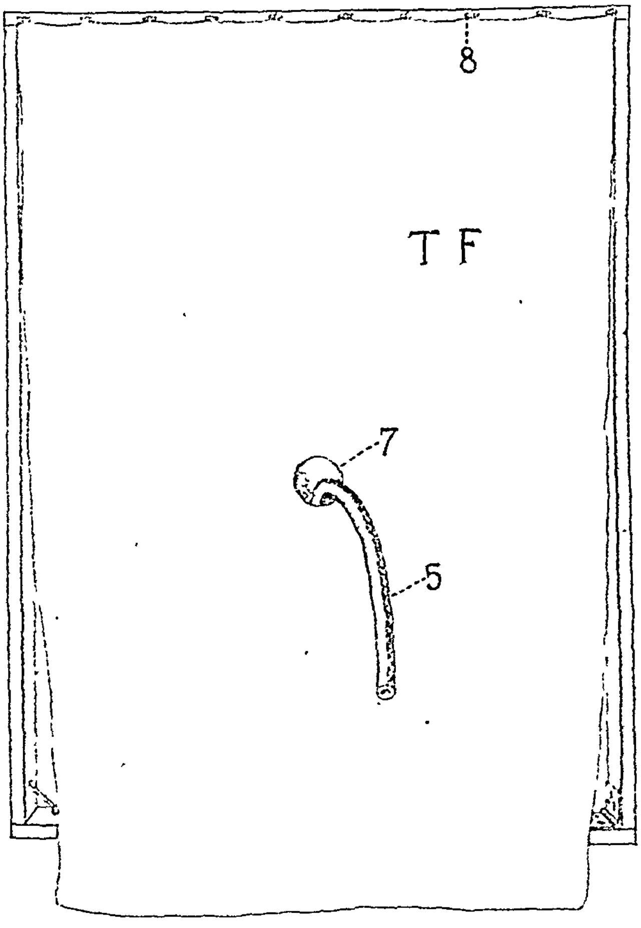

Fig. 6. TF, linen or muslin sheet, representing transversalis fascia, sewn with the linen sheet, seen in Fig. 5, and representing the peritoneum, to a piece of tape into which hooks are inserted, and these suspended from a set of screw eyes marked 8 on posterior aspect of upper border of frame of model. (5) Posterior end of rubber tubing, representing spermatic cord as it passes towards the base of the bladder. (7) Opening made in muslin sheet, representing the transversalis fascia, which corresponds to the internal abdominal ring, situated a little above the middle of Poupart's ligament.

Fig. 8 shows how the model can be used for teaching the various inguinal hernia operations. The sac can be transfixed and ligated, and allowed to drop back (8 in Fig. 8), or it can be detached from its loops, to preserve it. Then, in order to complete a demonstration of the Coley modification of the Bassini operation, a twine or silk suture passes through the internal oblique and transversalis above the cord, and is inserted into the tape representing Poupart's ligament. Three sutures are placed below the cord, in order to bring the internal oblique and transversalis down to the shelving edge of Poupart's ligament. The cord is held aside by a piece of

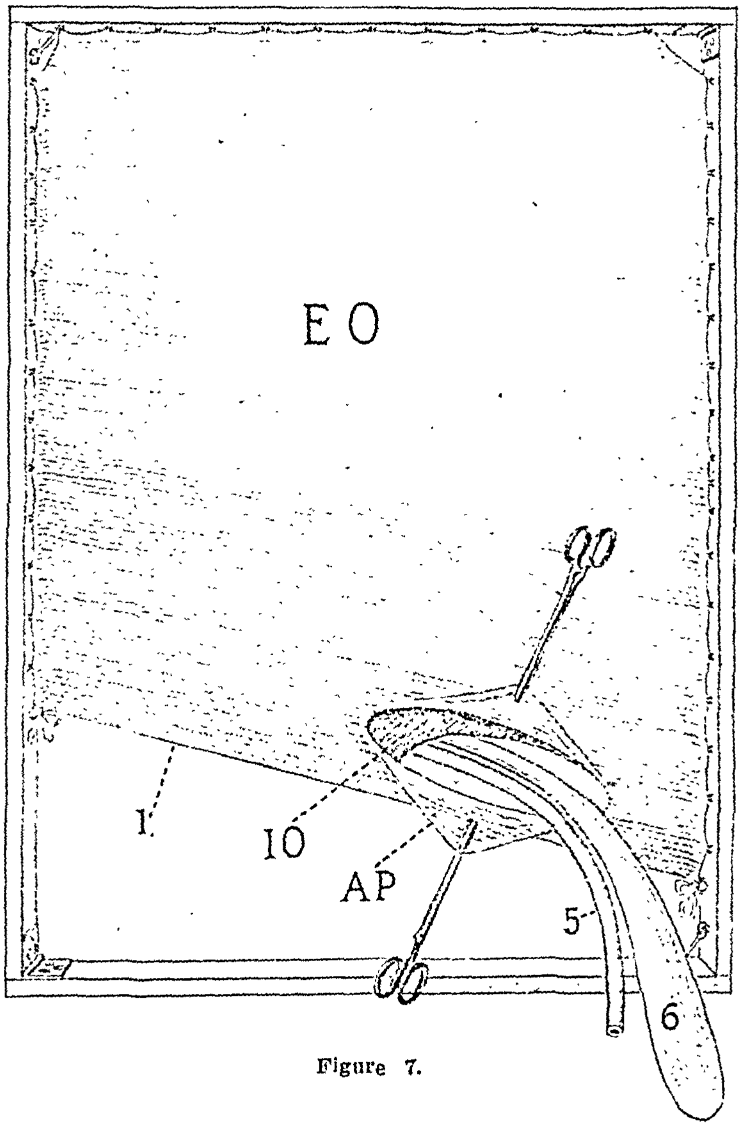

Figure 7.

Fig. 7. Anterior view of model, with edges of slit (AP) in external oblique aponeurosis, seen in Fig. 2, held back by two artery forceps. This shows the arching fibers of the internal oblique (IO), beneath which appear the spermatic cord (5) and the hernial sac (6). (1) Tape, representing Poupart's ligament, to which EO, the external oblique, is shown. This demonstration may be used to show either the anatomy of an inguinal hernia, or the first step of all of the modern radical cure of inguinal hernia operations except that of Kocher.

Fig. 8. Use of model in demonstrating the further steps of the Bassini operation. EO, external oblique aponeurosis, whose edges are held back, as in Fig. 7, by means of two artery forceps. TE, tape holding the rubber tube, representing spermatic cord (5), aside, in order to permit suturing of the deeper muscles. S, neck of hernial sac transfixed and tied off by means of a piece of silk. BC, suture inserted according to the Coley modification of the Bassini operation above the cord, bringing the internal oblique and transversalis to the inner aspect of Poupart's ligament. B, three sutures which are inserted below the cord in order to bring the internal oblique and transversalis, as well as their conjoined tendon, to the inner aspect of Poupart's ligament.

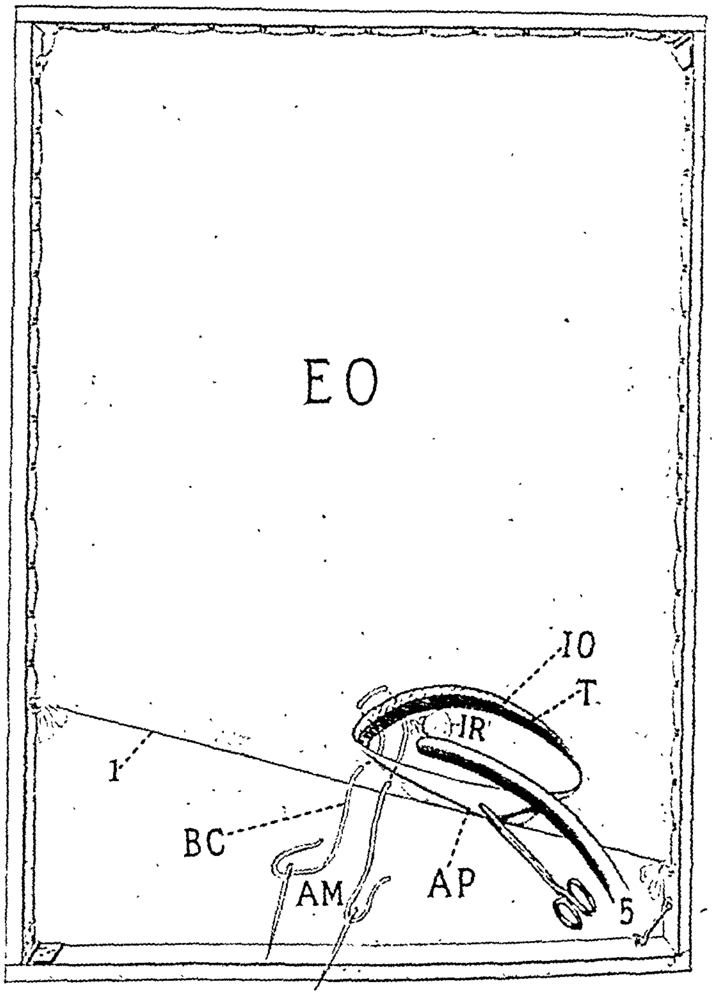

Figure 9.

Fig. 9. Model employed in teaching the Andrews modification of the Bassini operation, as performed by the writer. EO, external oblique aponeurosis; the lower edge of the slit in the external oblique aponeurosis, which extends from the external to the internal oblique rings, is shown as being retracted downward and outward as AP. (1) Poupart's ligament; IO, arching fibers of internal oblique; T, arching fibers of transversalis. (5) Spermatic cord; its upper end is seen to disappear at the internal abdominal ring IR. BC and AM, two threaded ends of suture which passes through edges of the external oblique, internal oblique and transversalis, in order to bring them over to the inner aspect of the external oblique aponeurosis close to Poupart's *ligament (see text)*. The threads are shown as passing through the external oblique aponeurosis and emerging on its outer aspect to Poupart's ligament (1).

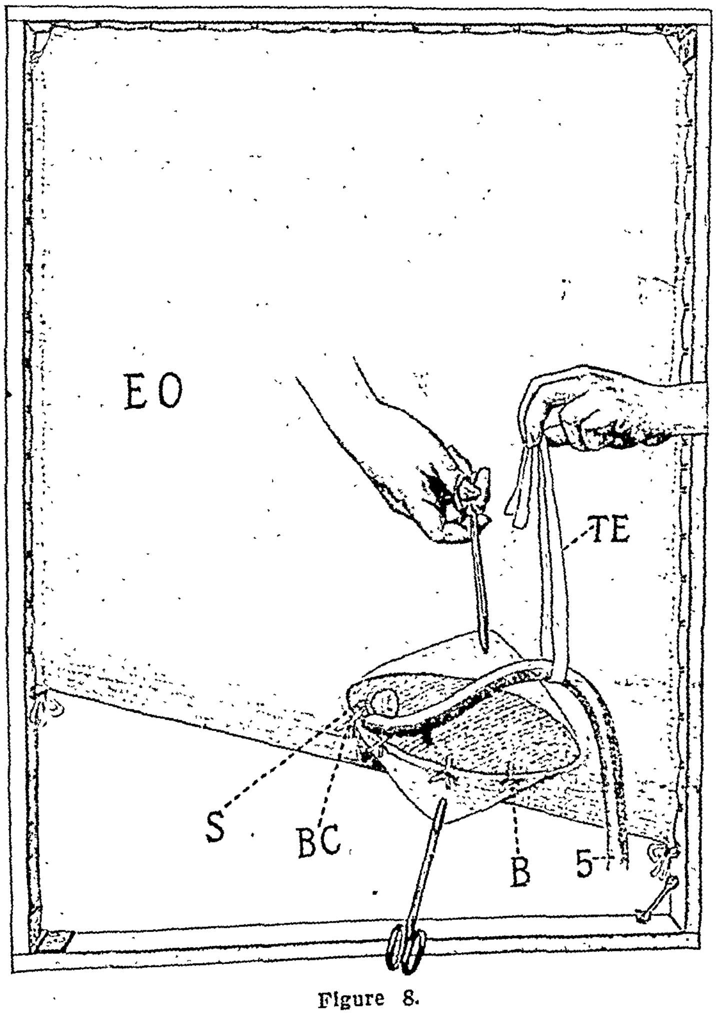

Figure 8.

tape (Fig. 8). The effect of this strengthening of the posterior wall of the inguinal canal, which is the object of the Bassini operation, with the transplantation of the cord in front of the internal oblique and transversalis, can be seen in Fig. 10, which gives a view of the posterior aspect of the inguinal canal after the sutures of the Bassini operation have been inserted.

Fig. 9 shows how the model can be employed in teach-

Fig. 10. Posterior view of model, with peritoneum and transversalis fascia removed, the eyes to which they have been attached being shown as (8). T, transversalis muscle; (5) tube representing spermatic cord; to its right is seen one suture, and to its left four sutures, in order to demonstrate to the student how the posterior wall of the inguinal canal is strengthened in the Bassini operation and its Andrews modification by suturing the various muscles to Poupart's ligament.

Fig. 11. Box-shaped model described in text, which can be used for lateral view of layers of hernial region and operations. EO, external oblique muscle and aponeurosis. A slit has been cut in the sweater cloth and sewed up again (as in Fig. 2), leaving an opening (external abdominal ring), through which the hernial sac (6) and the spermatic cord (5) pass. IO, internal oblique muscle. T, transversalis muscle (observe arching fibers of IO and T). PL, Poupart's ligament (represented by a flat band of muslin). TF, transversalis fascia. At IAR the internal abdominal ring can be seen. P, peritoneum. At IHR the internal opening of the hernial sac can be seen. The spermatic cord (5) and hernial sac (6) separate at IAR, the former passing toward the bladder.

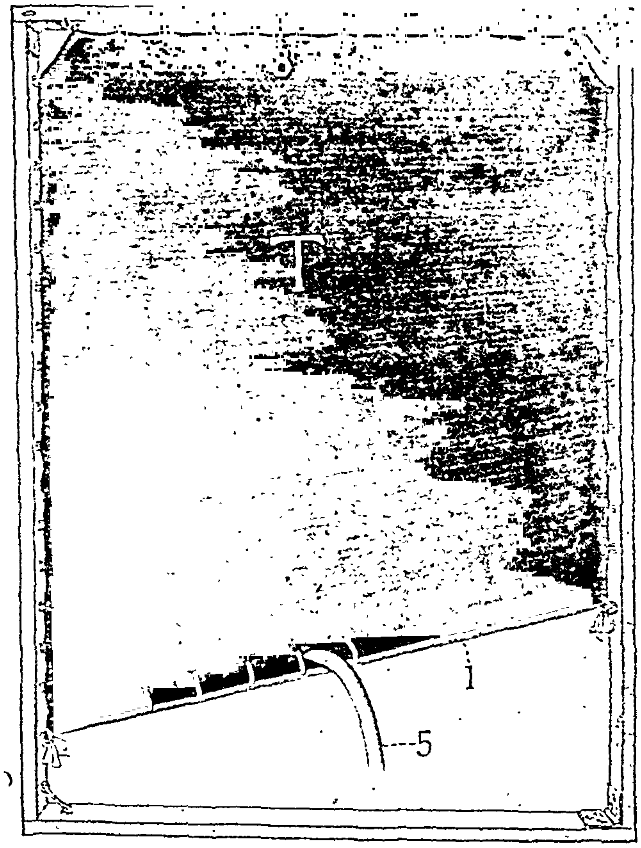

Figure 10.

Fig. 12. Front view of box-shaped model. EO, external oblique muscle and aponeurosis. IO, arching fibers of internal oblique. Muscle seen when slit made in external oblique has been opened and edges (AP) retracted by artery forceps. T, arching fibers of transversalis muscle. PL, Poupart's ligament. TF, transversalis fascia. (5) Spermatic cord, represented by rubber tube. (6) Hernial sac, represented by muslin bag, which tapers toward internal abdominal ring.

ing the Andrews modification of the Bassini operation, which aims to bring the internal portion of the external oblique aponeurosis behind the cord to further strengthen the posterior wall. I fully described this in a paper read at the last session of the American Medical Association.[1]

It has been impossible in such a model as this to imitate in an absolutely accurate manner the normal anatomic conditions, but for all practical purposes both of the models will suffice to illustrate the anatomy of inguinal hernia of the ordinary indirect and direct types, and at the same time they can be used for teaching the operations for the radical cure of such a hernia, with or

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[1] The Journal, Sept. 10, 1904.

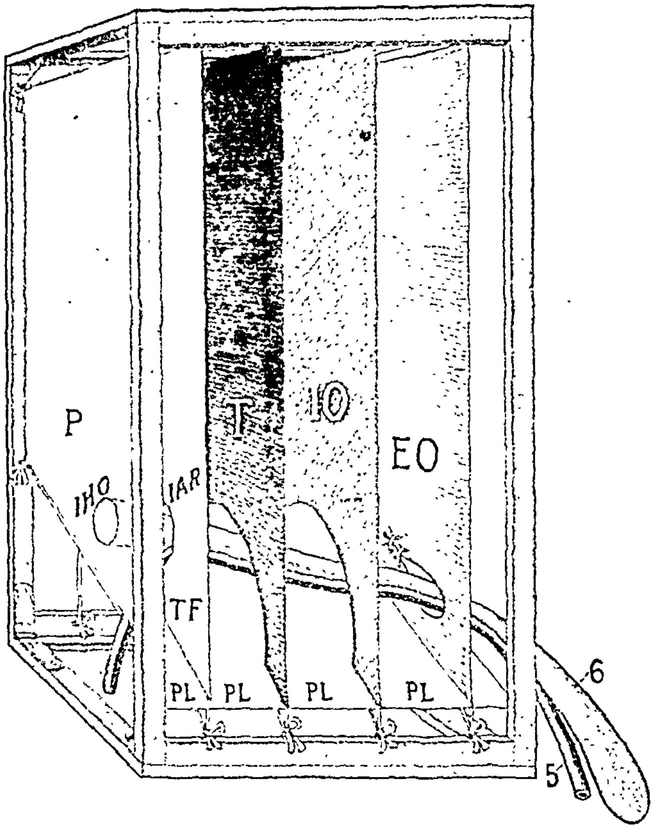

Figure 11.

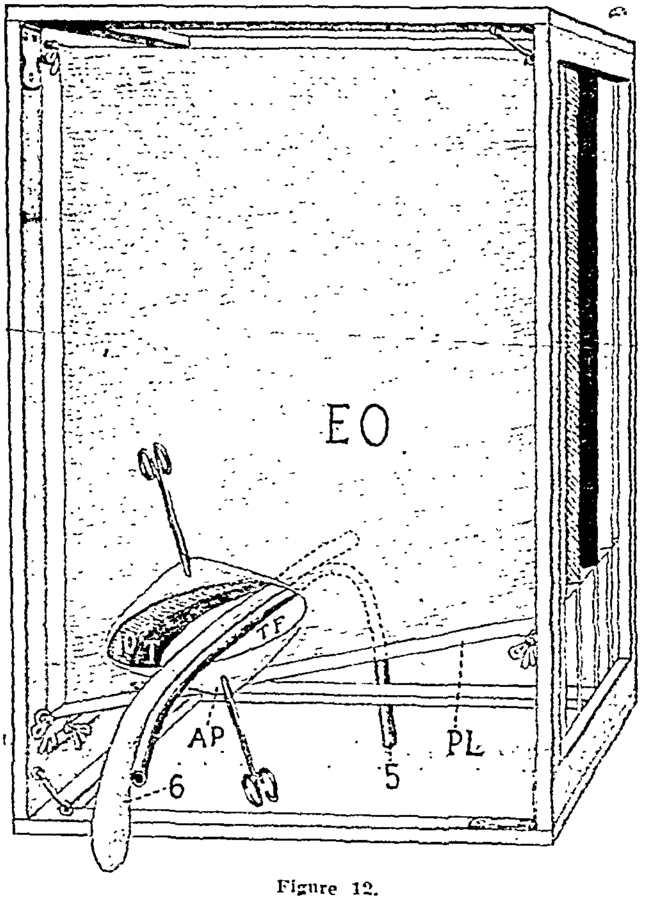

Figure 12.

without descent of testis. The anatomic points which could not be shown without making the model a less useful one are that it was impossible to imitate the relations of the aponeuroses of the three abdominal muscles, external oblique, internal oblique, and transversalis, to the rectus, whose anterior sheath they form by the union of their aponeuroses. Possibly at some future time I may devise some plan by which this can also be shown. For the same reason, neither of the models show the formation of the conjoined tendon, and the rôle which it plays in strengthening the posterior wall of the inguinal canal, a fact to which I called attention in a recent paper.[1]

The second model is simply constructed on the plan of a box, whose sides have been removed, in order to show the interior from all aspects. As will be seen by a reference to Figs. 11 and 12, the former shows a lateral and the latter a front view of the model. Such a plan enables us to show to the student, in a somewhat diagrammatic manner, the relations of the abdominal muscles, transversalis fascia and peritoneum, to each other, and at the same time it can be used to demonstrate the conditions existing in the abdominal wall, as best seen in such a lateral view after the various modern operations for inguinal hernia. The box-shaped model is constructed of four frames, two of which are hinged to each other, as shown in the figures. The dimensions of the vertical and horizontal pieces of the front and back of the frame are the same as in the anteroposterior model described above. The depth of the box-shaped model is 22 inches. The same colors are used for the different abdominal muscles as in the other model, the only differences being that each one is attached by a separate set of tapes to screw eyes inserted on the outside of the frame, and that they are sewed along their lower border to a wide piece of linen or muslin representing Poupart's ligament (P. L. in Fig. 11).

In the same manner as in the other model, the lower edges of the sweater cloths representing the internal oblique and transversalis are folded in to represent the arching fibers of these muscles. and similarly a slit is made in the external oblique which is closed again with sutures. The spermatic cord is made of silk-covered rubber tubing, and the hernial sac of a long muslin strip, whose edges are sewn together, and which is narrower at its upper end. where it passes under the arched fibers, and through the opening in the transversalis fascia (I. A. R. in Fig. 11), and terminates at (I. H. O.) the internal opening of the hernial sac (P in Fig. 11) in the peritoneum.

Figure 11 shows how the spermatic cord passes downward toward the bladder between the transversalis fascia (T. F.) and the peritoneum (P.).

The box-shaped model is much more difficult to construct. but the same may be said of it as of other models, that it will well repay the time and the slight expense involved in the construction for teachers to demonstrate the anatomy and radical cure operations on such models.

Portland, while not a large city. is peculiarly well fitted during the coming summer to provide for a large number of visitors. The Lewis and Clark Exposition will be in full swing at the time the American Medical Association meets, but, like all expositions, the attendance will not reach large numbers before the end of July or early in August, hence it may be confidently predicted that during the time of the meeting of the Association the town will not be uncomfortably crowded.—*Medicine.*

A SYSTEM FOR THE SURGICAL CORRECTION OF HARELIP AND CLEFT PALATE.*

GEO. V. I. BROWN, A.B., D.D.S., M.D., C.M.
MILWAUKEE, WIS.

The reasons for the existence of any system of surgical treatment, and particularly, one applied to the correction of a special class of affections. must be: First, a demand for such service. Second, its necessity by reason of the large number of failures and extreme difficulty of accomplishing good results by other methods. Third, that it makes possible an enlargement of the field of surgical accomplishment in at least one direction.

The blind, the deaf and dumb, the tuberculous and the crippled almost everywhere have institutions established for their care. States and communities have recognized the duty of ministering to the comforts and necessities of the afflicted in these directions. Large sums are annually contributed for the maintenance of such work, and the encouragement of scientific investigation to increase the efficiency of its usefulness, but no such responsibility has been assumed by municipalities, nor has any notable portion of endowments of charitably inclined wealthy citizens been devoted to the relief of these unfortunate individuals, half dumb through malformation of their mouths and palates and doubly cursed by having the deformity and the even greater affliction of mental comprehension of difference from their fellows. Their harelips. scarred and ill-shapen faces mark them, through no fault of their own, as were branded the felons in barbaric times; speech communion with their fellows is almost wholly forbidden and they live ever in the dark shadow of misfortune.

NECESSITY FOR NEW AND SYSTEMATIC METHODS.

To those familiar with the literature and practical features of this subject, it is patent that all methods of treatment, whether prosthetic or surgical, have hitherto failed to be successful in a large number of cases and have not been able to meet the demands of many cases at all.

Numerous methods of operation and most ingenious forms of obturators have been from time to time suggested by authors, and adopted by practitioners, with more or less benefit in individual or special kinds of cases, and yet, a systematic classification of the forms. with particular methods to be employed in the correction of each variety, showing comprehensive consideration of the distinct requirements that are found to be imperative, seems not to have received the attention that is due. This, the system that I now present to you in my own name, after years of practical study in the care of a large number of patients, seeks to accomplish in a considerable measure.

Its methods are necessarily founded on the ground work constructed by eminent surgeons, who have contributed to literature the results of their efforts in this direction, beginning probably with Lemonier. in 1776. as the first to attempt to close palate fissures by surgical means. followed by Eustache in 1799, von Graefe in 1876, Roux in 1879, Warren of Boston. 1820. Diffenbach, Liston, Sir William Fergusson,[1] the real author of successful staphylorrhaphy; Sedilot, Pancoast, William Garretson, Wolf,[2] Erdman, Billroth,[3] von Langenbeck, Trilet,[4] and a host of great surgeons, past and present, who, despite great discouragement—for this work is ever discouraging to surgical procedures when compared with other fields of operation—have each lent some share of personal skill and ingenuity to aid the perfection of the operative technic necessary to ensure the ultimate success of the work.

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* Read in the Section on Stomatology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904. The article has been abbreviated by the omission of part of the illustrations. The entire article appears in the reprints.

[1] Sir William Fergusson. International Clinics. 1877.

ORIGINALITY.

The operation for reduction of the width of the fissure, in combination with the use of the appliance as described, is original with me, and I first performed it in 1897.

Fig 1.—Cast of the mouth of a baby with single harelip, as in Figure 2, with the characteristic enlarged turbinate

The methods of preparatory treatment of infants for the correction of facial deformity in lip cases are, so far as may be judged from careful study of the literature, also original with me.

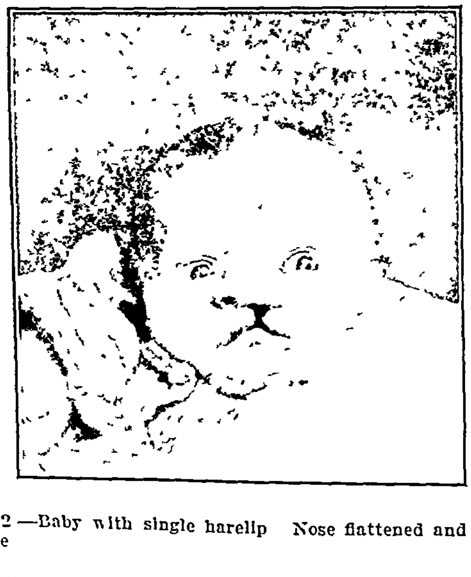

Fig 2—Baby with single harelip Nose flattened and drawn to one side

Various minor steps in the operative technic have been developed from time to time, without previous knowledge of others having introduced them, and are believed to be original.

CLASSIFICATION.

The following is a classification that I have previously reported in other papers, and is designed to cover the important considerations from a surgical point of view:[5]

1. Character: Congenital Acquired.
2. Form:
    - Fissure in velum palati only (Figs. 32 and 34).
    - Fissure of the velum, including part of the hard palate also (Fig. 36).
    - Cleft entirely through both hard and soft palates (Fig. 39).
    - Median fissure through both hard and soft palates, with bifurcation at the maxillary bone (Figs 41 and 43).
    - Double separation divided by the vomer, including the hard palate, with wide fissure almost completely obliterating the velum (Fig. 14).
3. Age:
    - At birth or during early infancy (Fig. 1).
    - Six months to one year old (Fig. 4).
    - Two years old and during the period after deciduous teeth have been erupted, but before their permanent successors have caused them to loosen (Figs. 36 and 39).
    - Twelve to 18 years of age, or later years. After permanent teeth have been erupted, but before developmental processes have been completed.
    - Adults with teeth in upper jaws (Figs. 41 and 43).
    - Adults with edentulous upper jaws (Fig. 18).

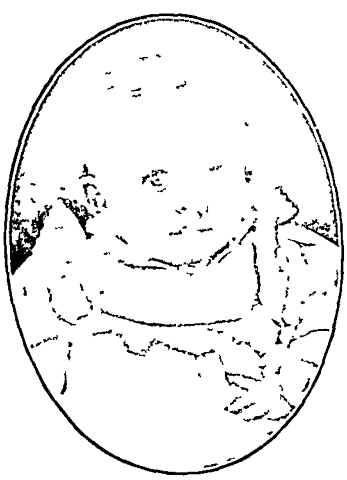

Fig. 3—Photograph of same baby shown in Figure 2 after operation and intended to call attention to the straightness of the nose, equality of shape of alæ and the fact that the mouth is closed, which indicates that he breathes naturally through the nose.

Either lip or palate may be imperfect without the other being affected, although, as will be noted by study of the illustration, it is common for certain forms of lip and palate deformities to be associated.'

Congenital lip deformities are either unilateral (Figs. 2 and 5) or bilateral (Figs. 7, 11 and 15). The former may be of first degree, or little more than a notch; of second degree, with a fissure extending completely through both lip and maxillary bones; or of third degree, a wider separation with unilateral protrusion of the intermaxillary bone.

Bilateral or double harelip has usually marked deformity of the vomer with protrusion. To these, unfortunately, must be added the cases that have been imperfectly operated on in early life, which so often call for correction and which, although presenting an infinite variety of imperfections, have nevertheless certain characteristic defects that admit of distinct recognition and may be enumerated as follows: 1. Notch at the labial border. 2. Deflection of the tip of the nose, with deviation of the cartilaginous septum and flatness of the ala on the affected side. 3. Unsightly scars. 4. Stenosis of one or both nares. 5. Marked arrest of development due to removal of the intermaxillary portion of jaw.

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[2] Wolf: Archives of Klinical.

[3] Billroth: Vienna Medical Presse, 1880

[4] Trilet, 1889

[5] Brown, George V. I. Surgical Correction of Malformations and Speech Defects Due to or Associated with Harelip and Cleft Palate, The Journal A. M. A., 1902. A System for the Treatment of Harelip and Cleft Palate, Chicago Med. Record, 1903 Relation and Comparative Merits of Surgery and Prosthesis in the Correction of Harelip and Cleft Palate, The Dental Summary, 190

EARLY OPERATION.

Radical operation for closure of cleft palate in the infant is to be condemned, because the death rate is unquestionably high. This is true of every serious operation at a period of life when the vital forces are busy adjusting themselves to a new, though natural, environment. The marked change from the direct protection and blood supply of the uterus to the uncertainties of nourishment and temperature after birth involves a problem fraught with many difficulties of solution, even in the care of normal children. How much greater then, when the vital forces are sapped by hemorrhage, and the digestive function disturbed by bacterial influences incident to operative procedures in the oral cavity, or wires left in the tissues of the mouth and jaws to gather bacteria in spite of antiseptic precautions, as they must and always do under these conditions.

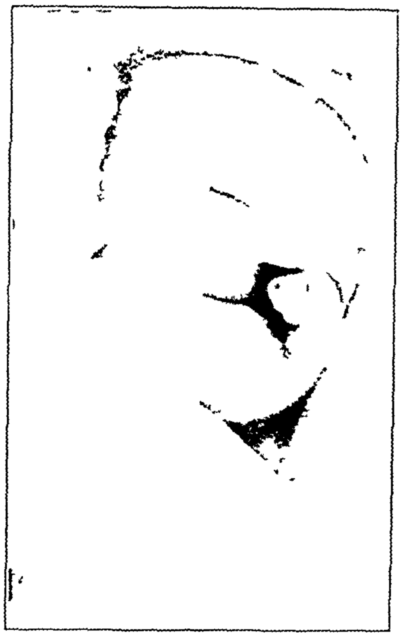

Fig. 7.—Baby with double harelip and the usual oral, facial and nasal distortions.

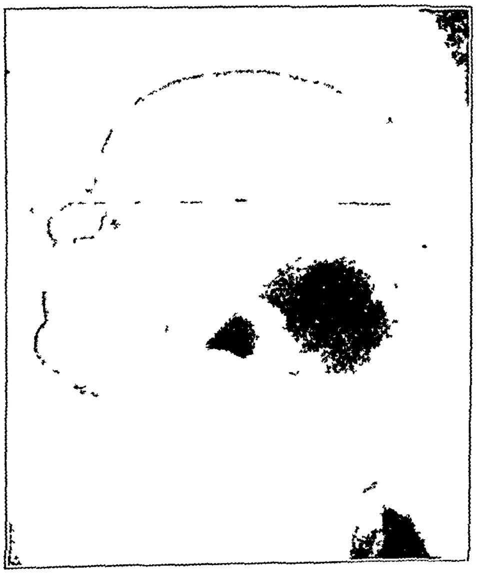

Fig. 8.—Same baby as in Figure 7, with parts bound in position after preparatory operation on the vomer and manipulation to replace parts and to bring them into normal position before final operation.

The question of meningitis also becomes a serious consideration when one contemplates the result of crushing the maxillary bones together to approximate the sides of such wide fissures as are found to exist in many cases, because of the co-relation of the still unformed semi-cartilaginous bones of the face and head, which share in the effect of compression, and added to this is the danger of infection being carried to the brain through the direct channels of communication.

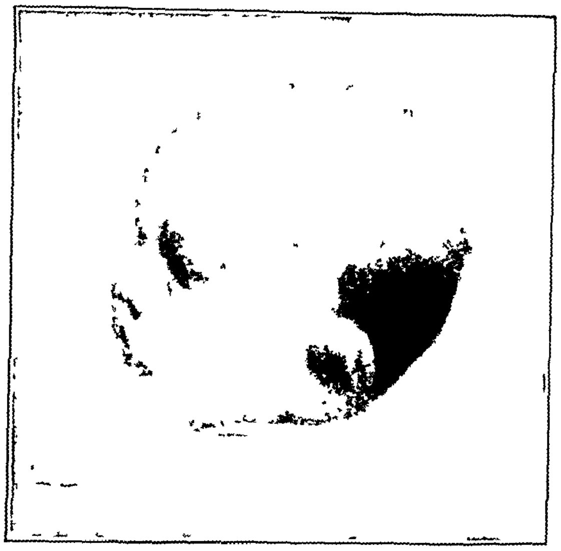

Fig. 9.—Same baby as in Figures 7 and 8 and after preparatory operation and treatment, with parts ready for closure by final operation.

Finally, it may be said that the results of such operations from a cosmetic point of view are certainly not so perfect or pleasing as may be accomplished by other means, and it is moreover reasonably certain that the functional possibilities of the palates and mouths thus treated with regard to speech are often not of the best.

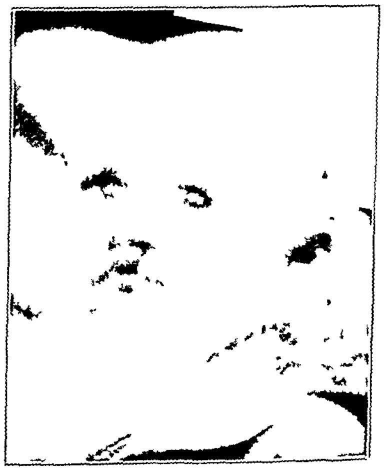

Fig. 10.—Another view of same baby pictured in Figures 7 to 9, after treatment, showing that the sides of the fissures remain in contact without sutures and calling attention to the improvement of the nose. Child is now ready for final operation on lip.

Foregoing statements may be better understood and their importance appreciated more fully, also the reasons for methods of treatment described later by a study of the defective operative results illustrated in Figures 20, 24, 25, 26, 29 and 30, which have been taken from cases in practice and which may, therefore, be said to be essentially practical.

The excessive unilateral development is a marked and almost invariable condition in these cases, the more so because arrested development of the opposite side serves to increase this deformity.

The enlarged turbinated, or the appearance of enlargement, which may be noted in each of the pictures and casts, is a very common concomitant and doubtless is due to a partial unfolding of its curvature, in an attempted adjustment to the unusual nasal space occasioned by the fissures.

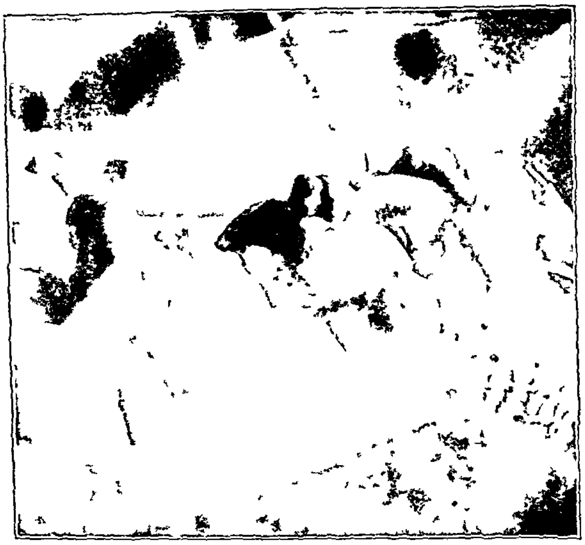

Fig 11.—Baby five weeks old, with characteristic deformity of double harelip

If, therefore, the sides of the jaws of any such cases are crushed together by immediate closure, as is recommended by some authors, one side of the face will project beyond the other, giving a peaked, extremely unpleasant appearance, that later developments can never hope wholly to overcome.

It must be apparent also that in many instances it is the inferior turbinated bone that must meet in direct line the border of the maxillary portion of the palate on the opposite side, or if not this, then there will be a complete and irreparable permanent stenosis of the naris, on the affected side, at least.

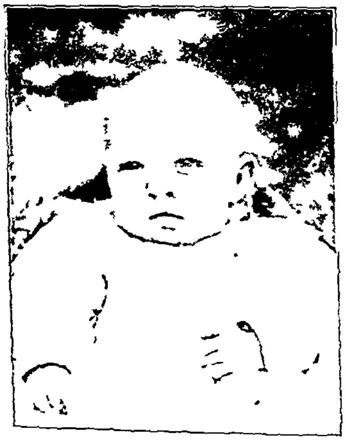

Fig 13.—Front view, after operation, of baby shown in Figures 11 and 12

Fig. 26 shows a little boy whose palate was closed in early infancy, and, as may be seen, the breathing is entirely by mouth. There is complete obliteration of one nasal passage, and almost the same condition of the other. The appearance of the face also confirms my statements.

In these cases, the intermaxillary bone is either attached to one side or separated by fissures on both sides. In the former case it projects, as shown in Figs. 2 and 5; in the latter, as illustrated by Figs. 7, 11 and 15. Thus an immediate, direct and forcible closing of the fissures would, under both conditions, leave an unsightly protrusion of one side, or the anterior aspect of the mouth and nose, which would be all the more noticeable because of the enforced narrowness.

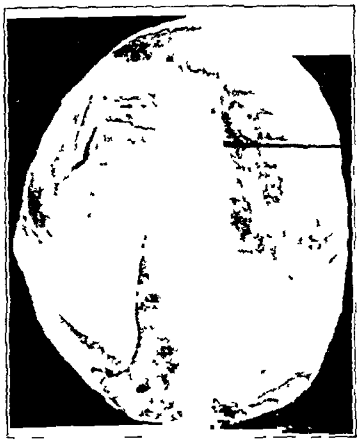

Fig. 18.—Cast of mouth of young lady shown in Figures 20, 21, 22 and 23, with cleft extending through both hard and soft palates, the fatal error of extracting all teeth having been made some years before coming to me. Line is drawn where maxillary bone was sawed and fractured to correct unequal maxillary development, with result as shown in Figures 19 to 23

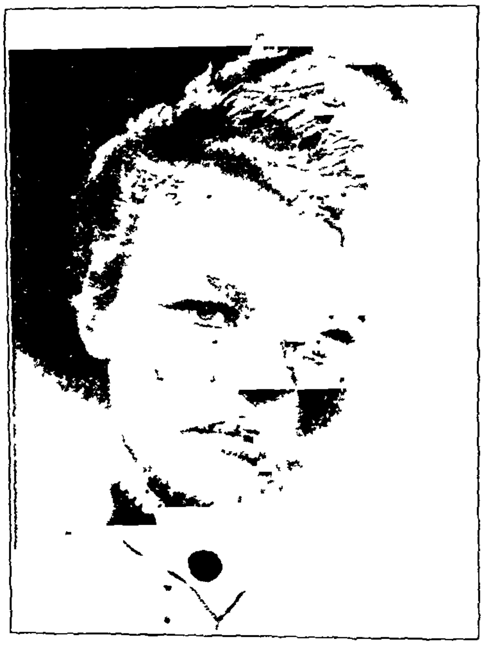

Fig 20.—Patient 22 years old, the casts of whose mouth are shown in Figures 18 and 19. Although the lip was closed in infancy by a famous surgeon whose skill is beyond criticism, the failure to adjust the maxillary bones resulted, as may be noted, in great nasal and facial deformity. Ala flat and nose almost entirely on one side of face.

One would expect speech to be facilitated by the fact that when early operation has been performed no opportunity is given to acquire the characteristic defects common to individuals afflicted with imperfect palates, and yet we usually find that this is not the case, owing to insufficient room for the tongue and conditions due to hasty closure of the soft palate, which must of necessity be less perfect than at a later age when more time can safely be given to accurate adjustment of the parts.

The impossibility of preventing infants from crying and straining the muscles of the soft palate, thus endangering the pulling out of stitches, together with the danger to the life of the child, both tend to show that there is real need for other methods.

TREATMENT OF INFANTS.

Provision has been made for all, or at least, most of the contingencies that arise in the care of these infants. If a child can be placed under treatment immediately or shortly after birth, when both lip and palate are affected, the method of procedure is as follows:

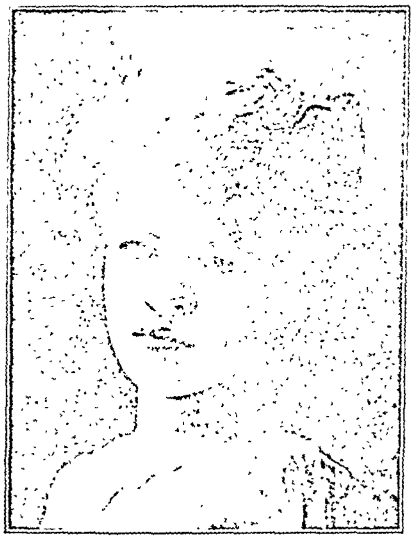

Fig. 21.—Same view of patient shown in Figure 20 after lip had been reoperated on, scar tissue removed and both jaw and nose straightened.

A day or two is given to allow the infant to become accustomed to its surroundings, if in a hospital, as is best, although not absolutely necessary. The child is weighed and its general condition of health observed, character of fecal passages, etc. If conditions are favorable, strips are then adjusted to prevent the action of the lower jaw from forcing the maxillary bones apart and widening both the palatal fissures and the lip separation. This also brings into play the muscles in such manner as to produce a narrowing effect whenever the little patient laughs or cries; in other words, the forces that ordinarily increase the deformity are now engaged in its reduction, and in addition thereto, are stretching the lip muscles and skin surfaces on each side, so that in a very short time there will be an abundance of material to bridge across and make a sightly operation, where formerly the supply was perhaps so scant as to make an operation extremely hazardous.

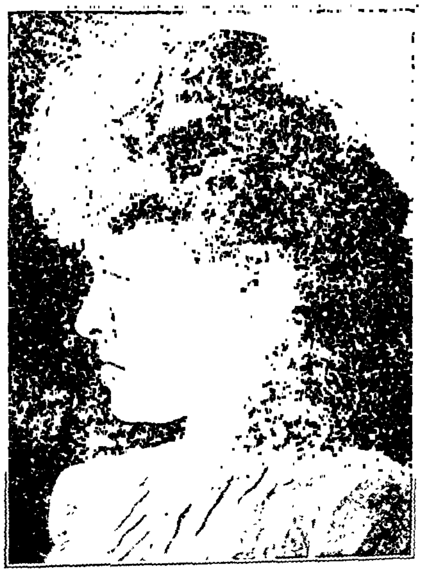

Fig. 22.—Side view of Figure 20, to be compared with Figure 23.

It is necessary that it be trained to eat from a spoon, or dropper, and all habit of sucking should be overcome, if possible, before operation.

Figures 2 to 16 inclusive call attention to the practical results of such treatment, and I think all will agree that a few weeks' preparatory care may sometimes be beneficially employed.

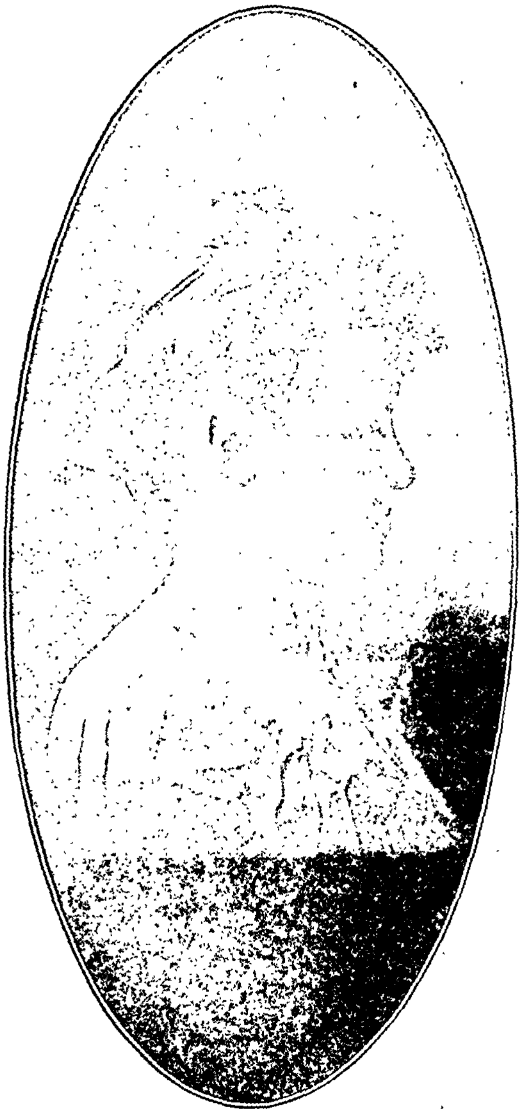

Fig. 23.—Side view of Figure 20, showing ala of nose on right side to be the same shape as on the left, as shown in Figure 22.

AGE FOR PALATE CLOSURE.

The proper time for palate operation depends largely on the physical development and condition of health of the individual, also on training, and subjection to proper control, because the best of health is not only desirable, but imperative, and unless the assistance of the patient can be secured in the way of intelligent co-operation in the post operative care and treatment, it is most unlikely that good results will be accomplished. Therefore we find that some children can be operated on safely and satisfactorily at a much earlier age than others. Yet it is by all means desirable that no bad speech habits be given time to establish themselves.

Our choice must then come between the years when the deciduous teeth have been fully erupted and before they have become loosened for their permanent successors, and yet, before speech habit has been fully formed. Fortunately the period during which most children talk "baby talk," as it is called, gives us more or less opportunity to make a satisfactory decision, since during this time the manner and form of speech are not what they will be later, and one change or another is much the same, because correct speech is yet to be acquired in any event.

REDUCTION OF WIDTH OF FISSURE BY THE USE OF AN APPLIANCE.

Having thus determined on the question of time, we next attach an appliance, such as is shown in Fig. 44. No other agent is necessary at this age, as the bones are soft and yielding, so that a slight turn of the little screw two or three times daily is sufficient to materially reduce the width of the fissure and to give the increased angles of the palate surface, which are necessary to make operation simple.

PREPARATORY TREATMENT OF ORAL, NASAL AND FAUCIAL TISSUES.

During the time of wearing the appliance, daily irrigation with nasal douches of salt water, boric acid, or other mild solutions of like character, should be given to correct the diseased condition of the nasal mucous membrane.

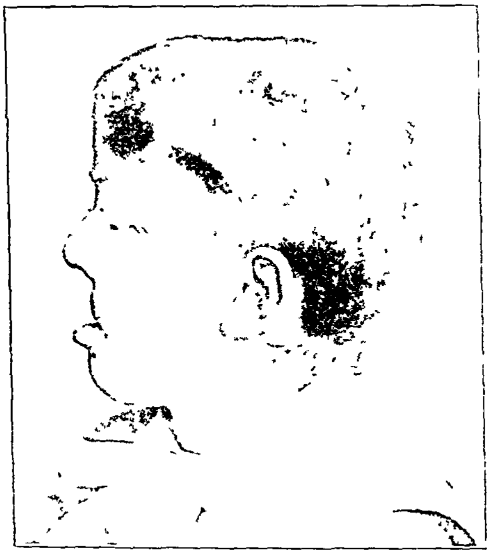

Fig. 25.—Shows deformed facial appearance, under conditions represented in Figure 24, after intermaxillary bone has been removed to close double harelip.

This treatment is important in all cases, for whether the patient be young or adult, hypertrophic rhinitis is a natural result of unusual exposure of the nasal and pharyngeal mucous membrane to thermal changes, irritation from mouth bacteria and other irritants.

Manipulation also should be given when tendency to gag on irritation of the faucial surfaces exists; otherwise, retching or vomiting at the slightest touch will make it almost impracticable to thoroughly cleanse the wound surface of the palate down to the tip of the uvula, as should be done, without exciting such disturbances, which might cause destruction of the integrity of the stitches. Proper treatment is of inestimable benefit in these two directions.

TREATMENT AT SIX MONTHS OR OLDER.

Infants who have reached the age of six months or more sometimes require the assistance of wire passed through the lateral sections of the divided jaw and secured by lead or silver plates, in order that by a slight bending of these wires from day to day a sufficient tension may be produced to bring about a readjustment of the deformed structures.

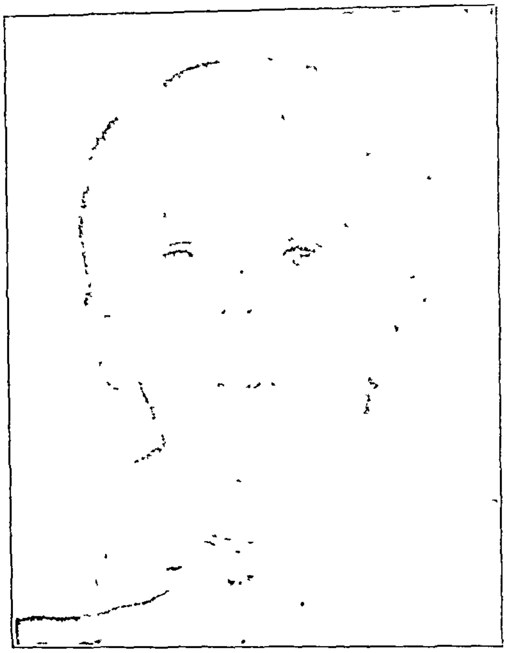

Fig 26.—Front view of same boy shown in Figure 25 His palate was closed in early infancy with what appeared to be a successful operation. The result at 7 years old may be seen. Complete stenosis of left naris, right side of nose also absolutely useless for breathing purposes, although probe can be passed through. Disproportionate appearance of upper part of face and head to lower quite apparent, due to arrest of development. Voice shrill, high and by no means perfect in pronunciation.

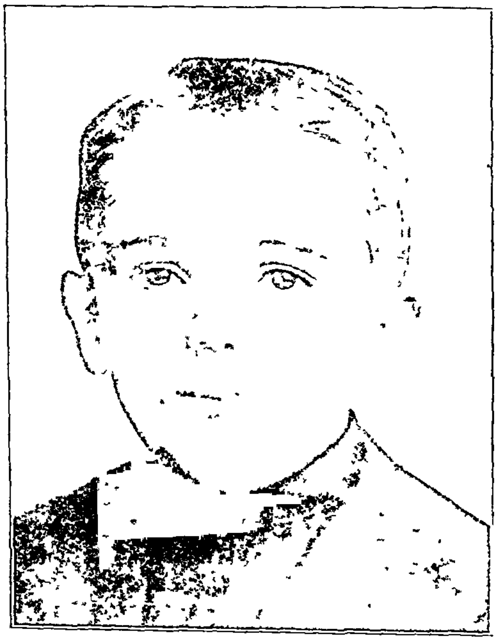

Fig 27.—Front view of same boy shown in Figures 25 and 26 after operation.

YOUNG AND ADULT CASES.

The appliance used for attachment to the teeth, and the nut, with threaded metal bar, do not differ materially in young or adult cases, except that a trifle more strength may often be required for the latter. There is, however, a difference in the manner of application.

The yielding quality of the young bones makes it possible, by steadily exerted pressure of the appliance alone, to bring the sides nearer, and thus to reduce the width of the fissure; at the same time the palatal arch is increased in height and the sides so shaped as to make the angle of their slant more acute; for older patients this is best accomplished by cutting along the external walls of the superior maxillary bones, through the outer plates, particularly at the malar process, and behind the tuberosities. With strong forceps then crush together until a partial fracture makes exact adjustment to proper form an immediate possibility. The appliance, as in Fig. 45, then acts as a splint capable of exerting pressure if needed.

It is most desirable that the anterior or narrower portions of the fissure should be brought into direct contact, sufficiently so, if possible, to allow of freshening, not only the soft tissue, but the bony borders as well.

The complete circulation thus secured, after union has taken place, serves to nourish the flaps when the muco-periosteal final operation is performed, and does much to prevent sloughing, which is so much to be dreaded.

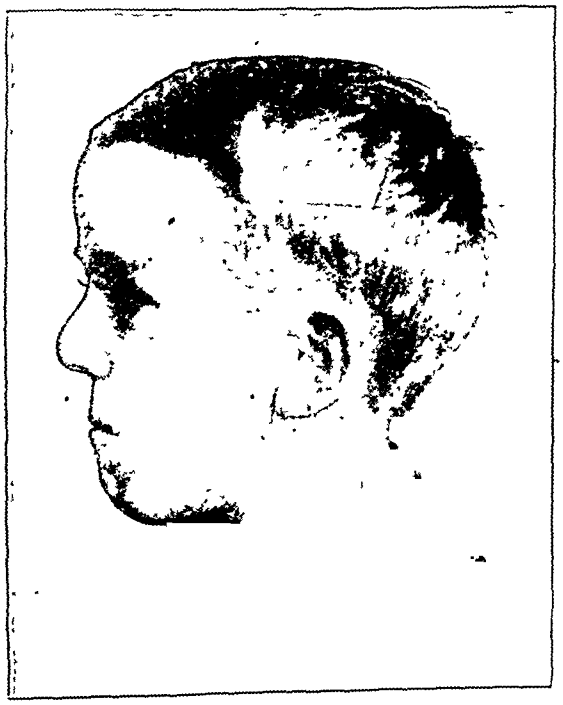

Fig. 28.—Side view of boy in Figures 25, 26 and 27 after operation, and restoration to more natural lines in profile.

IMPROVED FORMS OF NEEDLES.

The curve of each needle should be as exactly fitted to the part of the operation for which it is to be used as possible, because, in describing the segment of a circle necessary to insert a suture in the anterior portion of the hard palate, where it is high and narrow, and in the posterior portion of the soft palate, where the space is broad and shallow, the requirements are entirely different. This is true also of the intermediate portions of the palate surface. The mucous secretion and hemorrhage make it difficult to see perfectly at all times in the act of catching the point of the needle and to easily secure the suture. Therefore great assistance is rendered if the exact curve of the needle can be so calculated as to enable the operator to know, with some degree of accuracy, just where the point will reappear on the side opposite the point of insertion.

Three sizes of needles, after the form of perineum needles, curved to allow of convenient use at the different angles required for operations in the mouth, meet the necessities of the situation very well, but for my own use it is a great advantage, and since I use both right and left hands in operating, much benefit is derived and the time of operation materially shortened by the use of a set of five pairs of needles (my own design), with opposite curves (right and left), each pair graded in size from the large ones used in the posterior portion of the soft palate to the smallest, which are suitable for the extreme anterior portion of the hard palate. These are threaded with the suture materials before operation in order to save time and confusion, and to leave the assistant quite free to handle sponges and thus reduce to a minimum the troublesome hemorrhage that usually attends operations in this region.

SPEECH RESULTS AND TRAINING.

A system would be but half complete that offered no assistance beyond repair of the imperfect oral instrument and did nothing afterward to teach the use of it.

Postoperative training must be our final consideration. It is a noticeable fact that individuals who are quite unable to recognize imperfections in the sounds of words, as they pronounce them, detect the difference at once when their own speech records are sounded from a graphophone, the effect being the same as though another person were speaking. To take advantage of this it is advisable to have a record taken before and another immediately after operation, while from time to time, as the training progresses, much encouragement is given by having others taken for comparison. Preferably, the same words should be repeated in order that the test may be exact.

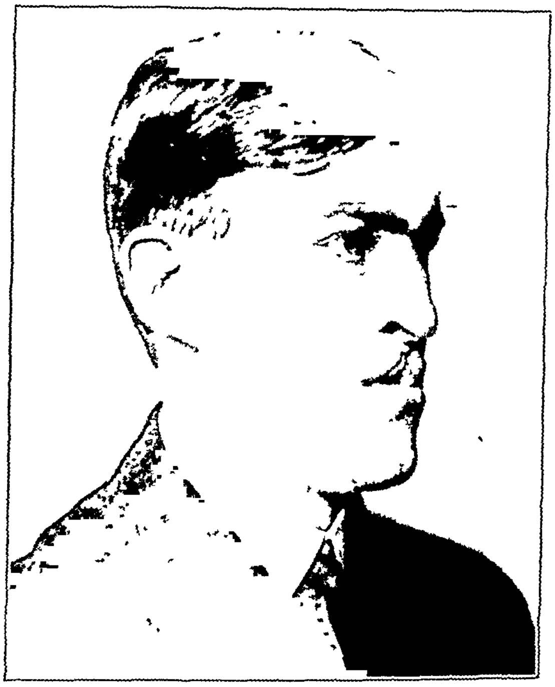

Fig. 29.—Young man of 22, showing result of early imperfect operation for double harelip.

Walter Edward Scripture, in his most valuable work, "The Elements of Experimental Phonetics," makes the following reference to phonographic speech records, which is completely in accord with my practical experience in training these cases:

> When a record is found that speaks clearly, in a natural voice it can be trusted for what it says, since it can not say anything more than is on it, and can not improve its own tracing. The speech represented by a tracing from a record is the speech of the record itself. How nearly this reproduces the original

speech can only be determined by comparing it by the ear with the words of the original speaker. By skillful manipulation records can be made whose speech can not be distinguished from that of a living person, except by their weakness and by the scratching noise due to the friction of the tracing point in the groove.

A study of phonographic records, taken from patients of different ages, temperament, degrees of intelligence, and extent of palate deformity, showed some interesting differences in speech defect.

The facility with which some patients improve in speech after restoration of the palate by operation, and the difficulties that others of the same age and equal mental capacity seem to encounter, as noted by comparison of the phonographic records and casts, indicates very clearly that the extent of the fissure is by no means an exact index to the character of speech defect, there being a somewhat surprising dissimilarity of speech sounds among these patients. Undoubtedly, there are certain easily recognizable wrong sounds common to them all, but the inability to speak correctly individual letters, words and sentences is by no means the same in all cases, even where the palate fissures are quite similar; all of which serves to emphasize the necessity for careful consideration of speech mechanism as absolutely a first essential in the construction of a plan for speech and voice training calculated to give the best results.

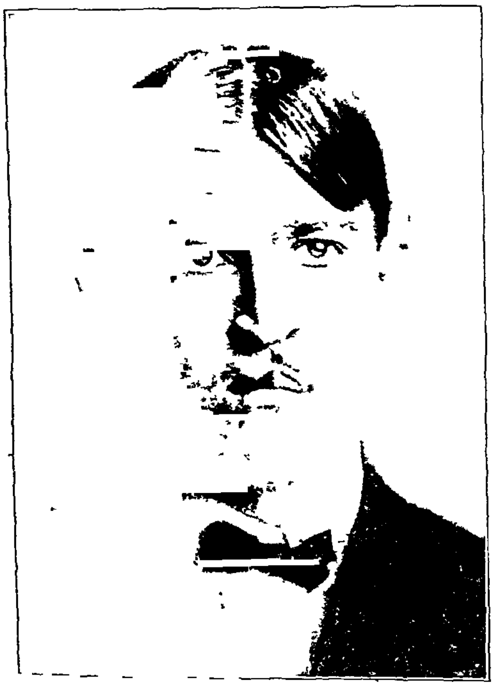

Fig 30.—Front view of same case as in Figure 29.

This, on previous occasions, I have summed up in the following manner:

The first cry of the child is merely a sound caused by reflex action of the muscles, without any guiding influence exerted by the faculty of reason. This is followed by the first efforts of sound to represent intelligent words as objects begin to be recognized, and gradually this is continued and extended until expression of ideas in speech becomes possible. It will be readily understood that if these efforts have been on normal or correct lines, the muscular activity necessary to sound-producing must have been guided by the proper nerve centers, which will have caused an increase in the brain development of those centers, and the messages sent from the motor tract to the muscles which are concerned in the utterance of words will be in all respects correct and the habit of proper speech will have become an established fact. On the other hand, however, if a deformity has existed from birth, by reason of which the normal use of certain muscles has been greatly restricted, and the use of certain other muscles, not commonly used in the process of word enunciation, have received more stimulation than would have been the case had there been a perfectly formed mouth and throat, the results must invariably be an increased development of the nerve centers which are injurious to speech, with a faulty development of those that are necessary to perfect speech. This might be termed a habit, but the word habit conveys too restricted an idea of the condition. For example, when the eye, through its retinal image, registers on the brain structures the particular nerve stimulations, which in time will become associated with the name of an object, its form record is established by what may be known as the visual memory centers. Precisely also are the somesthetic areas affected by the tactile sense, and memory of the sense of touch, as well as taste, smell and other stimuli that may have been excited by or associated with any particular object, and, when the sensorium takes consciousness of this object, the name of which has become known to it, there is required the co-ordination between these different memory centers in order that the proper message may be sent to the motor centers, through which certain muscles may be set in motion in the proper manner to produce the sound which may be clearly recognized as the spoken name of the object.

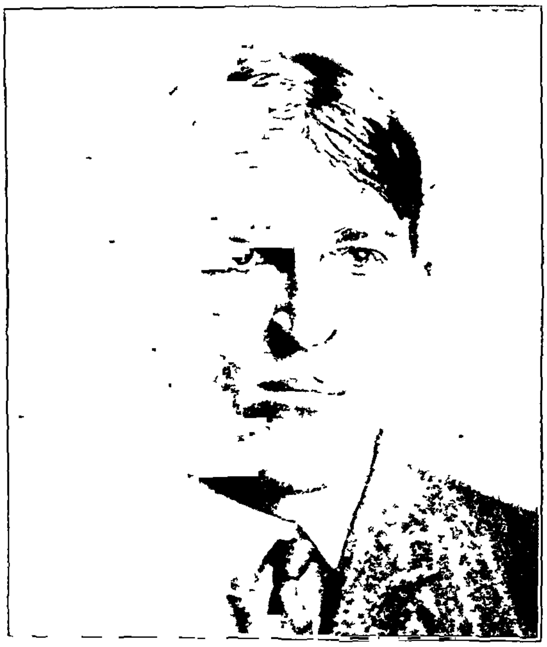

Fig 31.—Result in case shown in Figures 29 and 30 after operation, by which lip, nose and jaw were readjusted and scar tissue removed.

It is known that in speech the muscles of the chest, which are responsible for expiration, the muscles that raise and lower the larnyx, those that tighten the vocal cords and tip the hyoid bone, as well as resounding properties due to the nearness of the spinal column, and the co-operation of the forces that are applied in raising and lowering the soft palate, the adjustment of the tongue and proper action of the muscles of the cheeks and lips, are all necessary for the utterance of even a single word. If, therefore, during the life of the individual, through faulty operation or adverse action of these agencies, wrong messages have been constantly sent to portions of the brain concerned in making a certain sound, and if the auditory memory centers have registered, by the constant hearing, imperfect sounds for specific words, which accordingly have caused the development of brain structure which is all active against correct speech, and if there be an insufficient development of those centers which are needed for perfect speech, how great becomes the difficulty of giving a speech power to individuals in the face of all these acquired disadvantages.

Kingsley's palatograms (Fig. 47), obtained by coating the surfaces of thin plates covering the palate surfaces with chalk, in such manner that whenever the tongue touched, in sounding a word or letter, the black surface showed through, are of interest as indicating why certain letters are so troublesome in these cases. It will be noticed by the illustration that points of contact of K and G are post velar, and therefore not only practically impossible without a velum, but almost equally so, unless after operation the soft palate secured be of perfect form and sufficiently flexible, under muscular control, to allow this contact to take place. These, it will be remembered, in support of the accuracy of Kingsley's work, are invariably troublesome sounds. Foster and Reichert, in describing speech under the heads of vowels and consonants, divided into explosives and aspirants, vibratory and resonants giving in detail the mechanism of alphabetical sounds, conclude with the following statement, that, from our point of view, is all important::

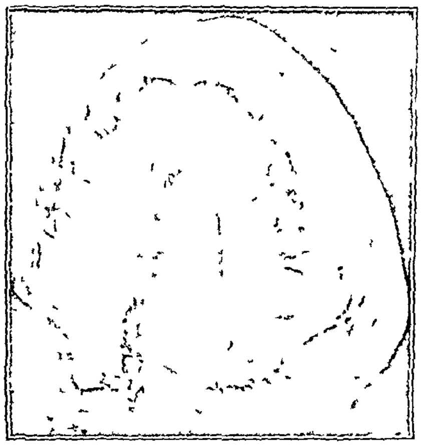

Fig 36—Cast of mouth of child, 2½ years old, with cleft including the velum and parts of the hard palate.

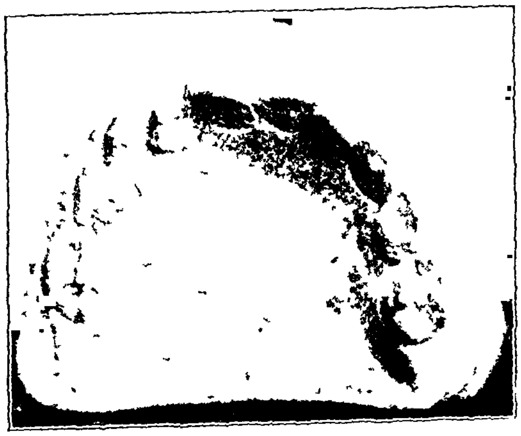

Fig. 37—Cast of same patient's mouth as in Figure 36 after closure by operation.

On many of the above points, however, there are great differences of opinion, the discussion of which, as well as of other more rare consonantal sounds, would lead us too far away from the purpose of this book. The following tabular statement must therefore be regarded as introduced for convenience only.

Scripture calls attention to the following factors of voice control:

1. Reflex Tonus: Tonus is a faint muscular contraction due to continuous weak nerve stimulations, easily subject to fatigue, ill health and other demoralizing conditions, lack of or disarrangement of which causes marked change of voice in both speaking and singing.

2. Force of Movement: This depends on the amount of stimulus sent to muscles, movements of which includes not only those directly involved, but also their antagonists. This requires an excess of effort over what might be expected, but when the innervations are properly co-ordinated this excess is not necessarily large and fatiguing.

3. Accuracy of Movement: Inaccuracy of movement is a fundamental source of inaccurate and wrong sounds.

4. Precision of Movement: This refers to regularity and evenness of execution and depends on nervous control.

5. Accuracy and Precision of Co-ordination: This represents the nervous control over simultaneous muscular movements. Some forms of thick speech of alcoholic intoxication and incorrect adjustments during excitement are caused by defective co-ordination in speech effort.

6. Quickness of Response: This is action of the nervous centers that tends to become automatic. One object in vocal training should be to render speech and song automatic.

7. Quickness of Muscular Movement: This depends on both muscular and nervous quickness and must be properly balanced; otherwise, speech appears labored or slurred.

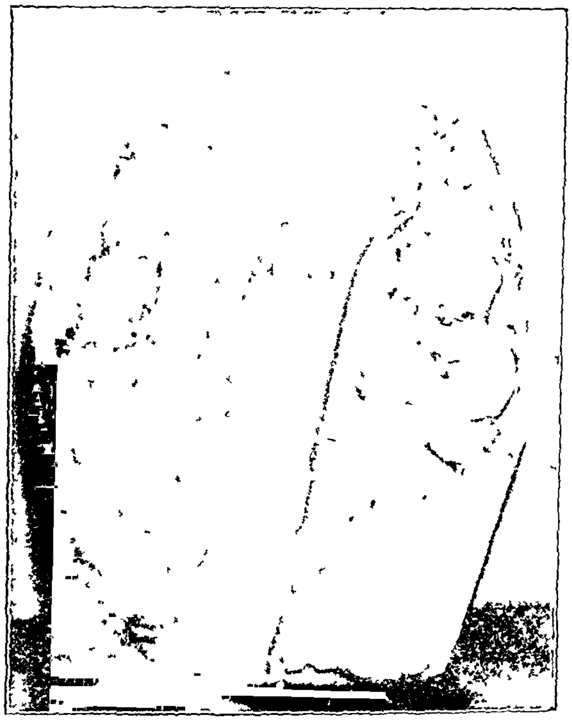

Fig 39—Cast of mouth of boy 2½ years old. Cleft through hard and soft palates

8. Auditory Motor Control: The learning of speech sounds consists largely in forming connections between motor and auditory sensations.

9. Ideomotor Control: Sounds occurring simultaneously with sights, touches, tastes, smells, emotion, act of will, etc., tend to be connected with them, so that when any one of a complex group occurs again, the others are revived more or less clearly in consciousness. It is in this way that speech movements become associated with printed letters.

10. General Voluntary Control: This is subject to changes of nutrition, fatigue, emotion and general habits. on all of which vocal control must place its dependence.

In my practical training of these cases, I have found that one of the best aids to speech improvement is singing. Even though the sounds be less musical than might be wished, and they often are, vocal lessons, or, in the absence of this, constant use of the voice in chanting sentences, after the manner of intoning church services, will enable the individual to speak reasonably well the particular sentences practiced in this manner in a very short time. Combining, as these exercises do, most of the essential points brought out in the foregoing description of speech requirements, it follows that there can be no more beneficial procedure.

Nervousness and over anxiety about rapid improvement in many cases retard progress quite seriously and must be overcome in so far as possible at the very outset. Such patients are best counseled that improvement must necessarily be slow, and cautioned against making too great effort.

A large majority of these patients are, as might be expected, individuals of extremely unstable nervous organization, and it is of quite frequent occurrence that some of the neuroses common to neurotics occur in the way of speech impediment. Aphasia with regard to certain letters and words, stammering, nervous hurrying, together with letters and sounds, are very often complications that retard progress. Doubtless much confusion in reporting results has occurred through failure to distinguish these affections.

Exactly why interference on the part of any nervous agent that might tend to disturb the rhythm of muscular movement must necessarily disarrange the speech harmony is most beautifully shown by a copy of one of Scripture's plates which is a reproduction of a photograph of actual sound waves taken during the recital of "Who Killed Cock Robin?" (Fig. 48).

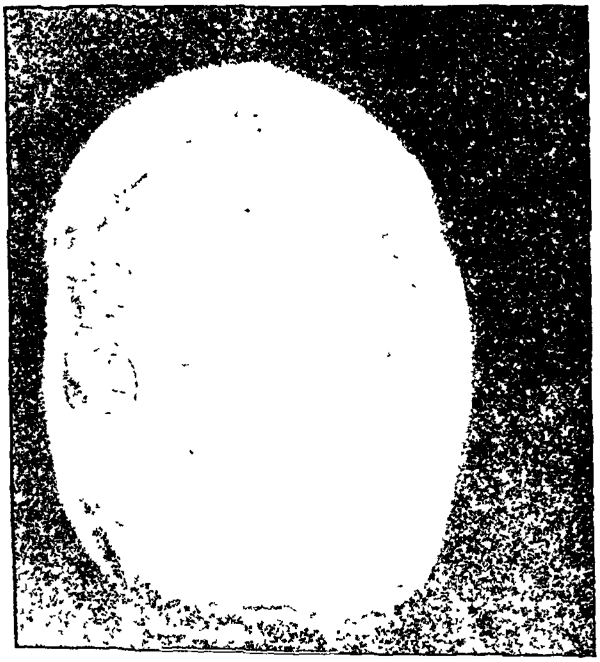

Fig 40—Cast of same mouth as Figure 39, shows result after operation. Fissure reduced by the use of an appliance and closed by final operation

PHONOGRAPHIC RECORDS.

The phonographic records show the degree of improvement in speech.

Case 1.—In the case of a girl of 14, who had only a fissure in the soft palate, before operation, it was impossible to distinguish speech sounds sufficiently for unaccustomed persons to understand what she said. Therefore, a phonographic record would have been a mere jargon of unintelligible sounds. The fourth grade was as high as she had been able to get in the public schools because teachers could not understand her. Immediately after operation marked improvement was noted by record. Later records showed remarkable change for the better, and on one or two occasions after training, she has recited before large audiences with much clearness and a very good approximation of perfection of sound, verses on which she had been drilled, but in general conversation her progress was not in proportion to that of better educated patients, as was noted in records of other cases. Eagerness in conversation always tended to cause lapses into old speech habits, and in this case, such difficulty was hard to overcome; a difference being apparent if she were allowed to associate for a time with people who themselves spoke incorrectly or carelessly or the reverse.

Case 2. Another young girl, 22 years old, with the same character of fissure, but who had a high school education, could speak much better than the preceding one before operation, the range of her intelligible, even though somewhat nasal sounds, being much less limited. After closure of the cleft, though operative results were quite perfect in both cases, her progress in the line of improvement in conversational sounds was shown by the record to be much more marked.

Case 3. Patient, mother of a grown up family, aged 38. Cleft in soft palate the same as Cases 1 and 2. She was not well educated, but not ignorant and of less nervous temperament than the other two. Speech, as might be expected, was better than Case 1 and not so good as Case 2. Soon after operation, therefore, without training, her record was found to be surprisingly good, due in a considerable measure, no doubt, to freedom from nervousness. Later reports of improvement were much more favorable than was expected, but have not yet been confirmed by record.

Fig 43—Photograph of mouth of patient with cleft through both hard and soft palates Casts shown in Figures 41 and 42 were taken from this patient's mouth.

Case 4. This patient, a girl of 16, in whom the fissure was confined to the velum, as in all the preceding cases, was as uneducated as the first patient, but with less natural intelligence. Scarcely a single word in her first record could be understood. Later and after much training, she was able to recite simple rhymes before large audiences quite well, but she has never acquired good speech. When corrected, she can repeat after another, sentence by sentence, even most difficult words with little noticeable speech defect.

Case 5.—A girl of 22, who had an acquired fissure of the velum, due to hereditary syphilis, was operated on after preparatory administration of potassium iodid, with successful results so far as closing the opening was concerned. It was not perfect in the sense that the preceding cases were, because cicatricial contractions, due to previous ulcerative processes, had stiffened the tissue. Notwithstanding the fact that this deformity was acquired at about the age of 14, and the patient's education was above the average, there was less improvement after operation than in any of the other cases.

Case 6.—In contradistinction to these other cases, a little boy of 9 years of age, whose congenital cleft in the velum was like that in Case 5, with very imperfect speech, was able to improve so rapidly that between the months of May and November, defects were so overcome that his school teacher did not notice unusual difference from other children of the same age.

Case 7.—A young girl of 22, fairly well educated, with opening in velum palati alone, in whom speech sounds were very bad before operation, was able, by reason of good ear and singing practice, to improve sufficiently to be able to pray and sing alone at Salvation Army meetings within a few months from time of closure. In this case, undoubtedly, religious zeal helped to overcome self-consciousness, together with other mental and nervous hindrances, while constant attendance on the meetings of the army gave the best possible training to the vocal apparatus.

Case 8.—A young man of 18, had a complete cleft of both hard and soft palates. He is a graduate of a high school. Before operation it was almost impossible to understand, yet, in repeating the alphabet, unusual ability to pronounce each letter was noted; even the G. K and C being more than ordinarily good. Stammering was the prime cause of his speech difficulty. The record, taken two days after the last stitches were removed, complete union by first intention having taken place throughout, even to the tip of the uvula, showed an almost astonishing result, since his voice from the graphophone, singing the "Holy City" sounded better, perhaps, than many of our own would if a similar record had been taken.

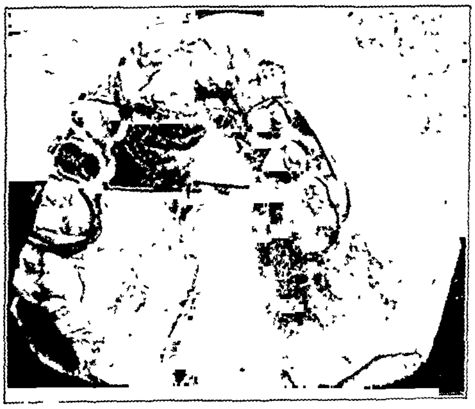

Fig. 44.—Cast with appliance adjusted as used in the reduction of the width of palate fissure, in cases illustrated in Figures 39 to 43, and all similar others of the same classes.

Case 9.—A young man, 19 years old, with a fair education, had fissure through both hard and soft palates. The first speech record was better than Case 8, on account of freedom from nervous habit, but ability to make separate sounds was less perfect. He could sing "Rock of Ages' quite well, and showed great speech improvement in later records as a result of two weeks' singing and drill exercise.

Case 10.—A boy of 9, for whom only the preparatory operation has yet been performed, has given us two interesting records. In one he recites the Lord's prayer with an obturater in his mouth, and in the next equally well without it, yet, with cleft through both hard and soft palates, it must be understood he could not have learned to speak so well had he not had the mechanical assistance in the beginning.

Case 11.—A young lady of 22, highly educated, but with wide cleft through both hard and soft palates, made worse by having had several previous unsuccessful operations; improved so rapildy after the normal form of the palate had been restored by operation that she successfully passed an examination to teach in an eastern law school. Although records in this case are not complete, the fact that she now holds an important position and daily transacts the telephone business of a large establishment is sufficient proof of her improvement. Undoubtedly, her rare intelligence and persistence have been assisting factors.

CONCLUSIONS.

I have thus presented a number of cases, covering not only different forms of cleft palate deformity, but varying characteristics with the same classes of deformity, due to the several conditions that govern speech habit in these individuals. A large number of other cases of which I have from time to time taken record, under all the various forms and conditions of these patients, confirm the results given in those here cited. All the selections given in these illustrations have been made on the basis of demonstrating distinctive, important differences bearing on operative procedures, and speech results, rather than a multiplication of similar cases, that would involve endless repetition and confuse rather than make the subject clear.

It has been demonstrated that some of these patients, with openings so wide that there appeared to be almost no palate at all, spoke as well or better than others with only a slight velar defect, and individual distinctions have thus been made apparent, from all of which the following conclusions are obvious:

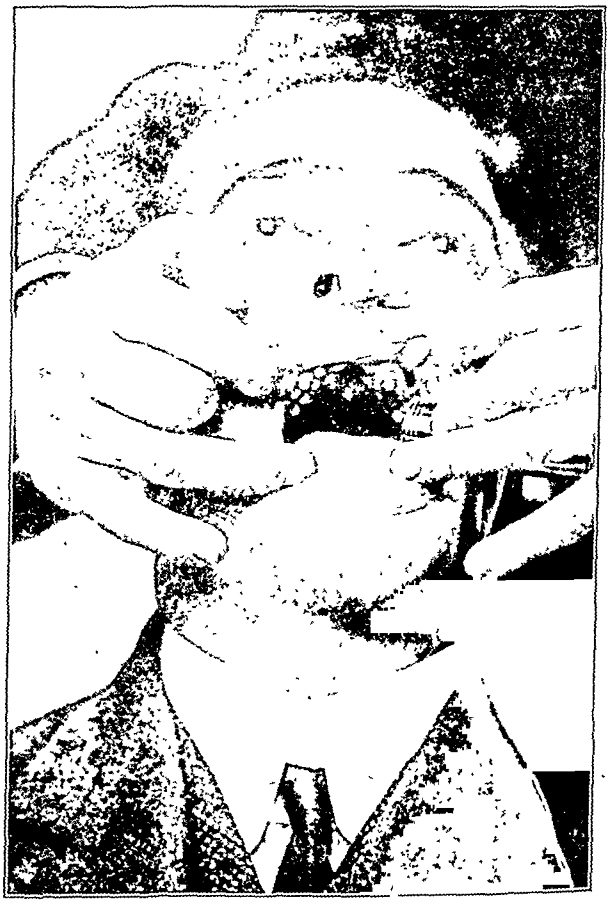

Fig. 46.—Photograph of patient with palate fissure as in Figures 41, 42, 43 and 45, after reduction by the use of appliance and final operation, with perfect result throughout the entire extent of both hard and soft palates down to the tip of the uvula.

To get the best results from operations, the palate must be restored in as nearly perfect form as possible. Freedom from scar tissue and from muscular tension sufficient to allow necessary speech movement are essential.

Proper muscular alignment at the point of union greatly facilitates the early usefulness of antagonizing muscles; therefore natural physiologic action is more promptly in evidence.

All these operative conditions are favored by the methods of the system herein described. Individual benefits assuming that operative results have been perfect or as nearly so as possible will be governed by patience, earnestness and application of the patient. Natural intelligence, aided by education, will be manifest in assisting progress. A musical ear (so-called), and ability to note rhythm and time in music are of very great assistance.

No cleft palate deformity can be so bad that it can not be corrected by surgical operation, nor need age prevent unless through lack of health on the part of the patient.

It has been my purpose throughout to treat this subject from the broad standpoint of a system to emphasize by precept and illustration the crying need for better treatment of a class of individuals whose misfortunes can not fail to appeal to everyone; to establish an understanding of the necessity for differentiation in the choice of operation and methods of treatment, and, above all, to prove the value of a practical system. Thus, matters belonging strictly to surgical technic have been, so far as possible, avoided and left for a future paper, but the postoperative treatment of these patients is so vital to the success of every operation that more than passing notice seems to be imperative.

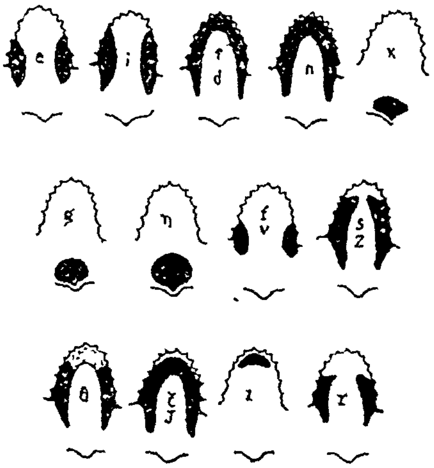

Fig. 47.—Kingsley's palatograms.

It is too often taken for granted that more or less sloughing and pus formation must follow extensive mouth operations, and that surgical asepsis is impossible. In a sense, this must be admitted to be true, owing to natural anatomic obstacles to complete sterilization and the constant exposure to infection from so many sources, but notwithstanding all this, most gratifying results can be secured, and so nearly a true primary union obtained as to make its essential benefit the same even with extensive wound surfaces. With the periosteum stripped from the palate surfaces; incisions reducing circulation to the farthest safe limit; nasal secretions above in contact with raw surface; mouth secretions below, mixed, as often occurs, with gastric regurgitations, and vomited matter; only a comparatively thin veil of tissue bridging the space of the palatal separation of the bones, and at the velum, exposed to destructive influences at every movement of the tongue, or act of swallowing, it goes without saying that only the most rigid adherence to antiseptic surgical care could be effective.

Strong solutions of poisonous, or tissue destructive, germicidal agents are necessarily precluded in the mouth. Dilution in the oral fluids renders otherwise effective solutions of practically no benefit. The histologic character of the nasal, oral and pharyngeal mucous membrane surfaces render sterilization extremely difficult, and it has been conclusively proven, that animal fats, dead mucous cells and other surface coatings resist even powerful drugs to such an extent as to protect underlying bacteria, while germs on the immediate surface are destroyed. Mechanical cleansing, therefore, is a first necessity, and next to this, frequent use of non-toxic, or mild solutions of otherwise injurious germicidal agents. Preparatory preparation of the field of operation consists in scrubbing membranous, dental and other surfaces, removal or antiseptic care of teeth or roots, and at least temporary stopping of carious tooth cavities. My postoperative sheet anchor is dioxogen,[6] which gives mechanical cleansing, in setting free the dead mucous cells and destroying the resistant nature of the intervening secretions, while at the same time it gives an immediate and powerful effect on bacteria in destroying their vital properties. Dioxogen[6] and 2.5 per cent. carbolic acid should be used alternately once each hour during the day, and at least four times at night. These washes are applied with a glass hospital syringe, with force enough to assist in the dislodgment of little particles of débris, but not force enough to be injurious.

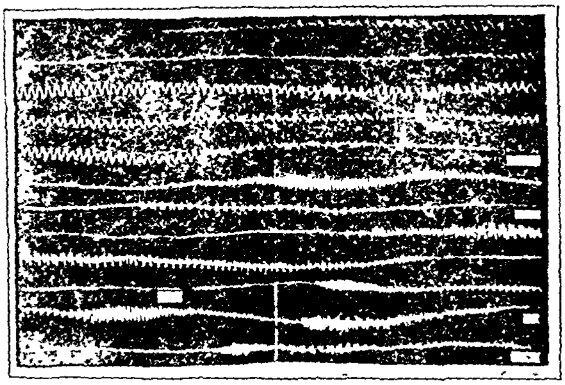

Fig. 48.—Copy of Scripture's photographs of sound waves in "Who Killed Cock Robin."

In addition to hourly washing, the use of applicators, made in the usual way, of absorbent cotton wrapped on tooth picks, is required from three to four times daily to wipe surfaces that washing alone will not cleanse sufficiently. Almost from the moment of recovery from the anesthetic, some one of the many oil preparations should be sprayed with a suitable nebulizer through the nasal passages, as well as the mouth, and continued throughout the treatment after each washing.

In dealing with children and infants, it is not always possible to follow all these directions, as they sometimes do not submit willingly, and naturally we must therefore do only so much as we safely can, but patience, judgment and skill on the part of the nurse can do much to overcome such difficulties.[7]

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[6] I use dioxogen because in my experience it has proved the most uniformly free from acid of any of the preparations of H_2O_2, commonly sold as such, and because an impure or a strongly acid solution must necessarily be absolutely prohibited when hourly treatments of the mouths of patients, many of whom are infants, is prescribed.

[7] Other references which may be consulted are as follows: Le Dentla: La Medicine, June 5, 1890. Ehrmann: Les operations plastiques sur le palais chez l'enfant, etc., Paris. Taylor: Dublin Journal of Medical Sciences, 1900. Edwin Owen: London Lancet, 1896. Telezit: Tribune Medicale, Paris, 1894. Talbot, Eugene S.: Stigmata of Degeneracy. Talbot, Eugene S: The Etiology of Osseous Deformities. Cryer, M. H.: Internal Anatomy of the Face. Fillibrown: Boston Journal of Medicine and Surgery.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL

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BALTIMORE.

(*Continued from page 779.*)

Liberation and Extraction of the Ganglion and Its Branches.—We now come to the method of dealing vith the ganglion, and here, no matter what the approach has been, difficulties in a certain percentage of cases are invariably encountered. Hemorrhage is the chief bugbear, and I confess to have dwelt too lightly on it in my earlier paper. My first two cases were fortunately, or unfortunately, unusually bloodless ones. Not uncommonly, I think in more than one-half of my cases, has it been possible, with almost no loss of blood, o arrive at this stage of the operation. Sometimes it nay be completed and the ganglion removed without ny difficulties whatever arising from bleeding, and his has been my good fortune on six occasions, but at ther times the structure is "below water" much of the ime.[23]

There are certain advantages, I think, which come rom working in a small hole and under the artery, rovided that there is a good overhead light, for with he manipulations necessary to loosen up the ganglion, he small vessels, most of which enter it from below, re torn and the ganglion is immediately submerged. The assistant should always be ready for this emergency, holding the pointed tip of a piece of gauze at the margin of the wound, and this is quickly packed down into the small conical-shaped cavity by the same instrument with which the operator is carrying on the dissection. After a few moments of pressure the bleeding usually will have stopped and further progress may be made. Thus, by packing and working alternately, the entire ganglion may be freed from its bed, though still attached by the rami and root at four points. It is most important not to divide nor tear any of the rami until the structure is completely freed from its underlying sheath. The larger operative well, which the higher operation with ligation of the meningeal produces, means, I think, that more blood will be lost each time that bleeding occurs, and that a greater amount of packing will be necessary to control it. I have referred above to the convenience of a small opening in the skull, since its edges may be used as solid points of leverage against which the shank of the dissector may be steadied while the ganglion is pried away from its firm fibrous attachments.

There are many other tricks in the control of hemorrhage which one learns from experience. Bits of cotton or small pledgets of gauze may be packed and held against one division, the veins near which may happen to be oozing, while another is being liberated. It is, I think, a convenience (essential, indeed, for me) for the operator to stand at the end of the table instead of at the side and to work over the patient's head, holding meanwhile the retractor, which elevates the brain, in the left hand. It is hardly possible for an assistant to do this satisfactorily, and the risk of compression injuries should be assumed by the operator himself. One hand is all that can be used with any advantage in the dissection, provided the assistants are ready with the gauze points as described above. Slight changes also in the position or in the degree of compression exerted by the retractor are useful in controlling venous hemorrhage. The patient's head should be somewhat elevated and care exercised that no pressure, be it ever so slight is exerted against the neck lest some stasis in the jugulars augment the venous bleeding, which, even under the conditions of normal low venous pressure, is the chief source of the operative difficulties.

With other ways of combating the bleeding from the ganglion I have had little success. The local application of adrenalin has, in my hands, availed nothing. Ligation of the external carotid, as I have said, affects only the arterial supply, and this does not concern the procedure under discussion. I have twice, as a preliminary measure, temporarily clamped the common carotid, according to Dr. Crile's suggestions. One of the cases proved an exceptionally dry one and the other equally bloody, indeed so much so that during the course of the enucleation I unclamped the artery, thinking that possibly the clamp might have been compressing the jugular vein, but could see no difference in the amount of bleeding either before or after liberating the vessel. Arterial (carotid) interruption, of course, does not affect the amount of intracranial venous bleeding, and of itself is attended with certain risks. I have almost invariably, while freeing the ophthalmic portion of the ganglion, either from pressure of the spatula used to elevate the brain or from the packing used to control hemorrhage, caused a pressure palsy of the oculomotor or abducens, as will be described later. Once, also, I had the lamentable ill fortune to tear into the cavernous sinus, as the history of Case 14 will relate. The style of instrument which has proved most useful for the liberation of the ganglion is a blunt dissector, the so-called "Joker," on the pattern which, I believe, we owe to Dr. Maurice Richardson of Boston. There are great differences in these individual instruments. The edge should be moderately sharp, the blade broad and the shank somewhat longer than in the usual form. A still longer handled dissector, which Dr. Halsted has had made on much the same pattern, has also proved useful, but no particular armamentarium is required for this operation, as Lexer has remarked. Emphasis has heretofore been laid on the necessity of practice gained by operating on fresh autopsy material. The sensations conveyed through the instrument to the hand while breaking up the fibrous expansions, binding the ganglion to its upper and lower dural layers, can not become familiarized by operations on dry cadavers in the anatomic department and should not be learned on the living subject. Once only (Case 15) have I had to abandon the attempt to remove the ganglion at the first sitting or even to completely expose its upper surface. A poor light, a difficult left-sided case and awkward reflexes led me to postpone the extirpation in this case. Forty-eight hours later a second attempt was made under better auspices, and, though the bleeding was as free as on the first occasion, the ganglion was removed successfully and without great difficulty. This was the only case in my series (7 of them left-sided) in which aphasia was occasioned; it was presumably due to the local compression—anemia brought about by the gauze pack—since it disappeared completely after the removal of the foreign body at the second operation. Krause,[24] likewise, has only once found it necessary to operate in two stages and regards a prolonged and bloody operation at the first sitting as preferable to the risks of postponement.

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[23] It may be repeated here that in those cases in which elevation of the upper layer of the ganglionic sheath and exposure of the structure itself have been *easily* accomplished, and in which the exposure may be carried far enough back to bring into view the trigeminal root, are those in which trigeminal neurectomy as Frazier and Spiller have advocated, is possible, and also those in which extraction of the ganglion itself may be carried out with comparative ease. In the difficult and bloody cases the trigeminal root can rarely be brought into view, and it sometimes occurs in these cases that the ganglion may be sufficiently liberated to enable extraction of the root when its simple division would have been impossible.

Closure and Dressing.—The statement made in my first paper that drainage is rarely, if ever, necessary, I must retract. The cases on which the opinion had been based had been unusually dry ones. I have since then drained for from 24 to 48 hours several of the remaining 16 cases. One had to be packed for many days owing to injury to the sinus, but in others a thin wick of iodoform gauze rolled in protective or a strip of protective alone has been left in the lower posterior corner of the wound. The closure is far from an unimportant detail. The temporal muscle should be resutured in place; more important still, the temporal fascia should be accurately reunited, including not only the portion concentric to the skin incision, but also the edges at the base of the flap, where, together with the zygomatic periosteum, they have been horizontally divided. The temporal pad of fat is always carefully protected and left in place underneath the fascia. Only by these details can the deep sinking of the temporal fossa be, in a measure, evaded and can there be a possible subsequent reunion of divided nerve fibers of the occipito-frontalis. The skin is closed with most accurate approximation by the finest black silk sutures passed on round intestinal needles. These sutures are removed in forty-eight hours at the first dressing—never later than the third day—and no trace of the stitch puncture can be seen, and the linear scar is even from the onset almost invisible. There is no stretching of the scar in this situation, possibly due in part to the paralysis of the muscles, and the obtrusive cicatrices which are seen and even photographed after ganglion operations, indicate a very careless closure with coarse materials. The adhesive qualities of the silver foil applied to the wound by moistening with alcohol, as it is customarily used in Professor Halsted's clinic, gives a sufficient support to the wound after the sutures are removed. Others might prefer to give this support by a collodion dressing.

Blood Pressure Observations.—There is another detail of the operative period which deserves mention. In this, as in all other surgical procedures attended by any special risk, blood-pressure observations may advantageously be taken beforehand to obtain the patient's normal, and be plotted serially during the entire continuance of the anesthetic. Aside from the physiologic interest attached to such records, they serve to give the operator, who may interpret their import at a glance, the best measure of the patient's condition. This is emphatically true for cases in which there is likely to be considerable loss of blood; equally so for those in which an operation conducted on the central nervous system may directly or reflexly upset the vasomotor mechanism—characteristics of all intracranial or spinal operations. Comment was made in my earlier paper on the wisdom of keeping careful records of pulse rate, but at that time no sufficiently simple form of apparatus for estimating blood pressure, a much more important factor, was available for clinical purposes. An experimental investigation of the blood-pressure reaction in acute cerebral compression had shown that a rise in blood pressure took place, which was, in a measure, indicative of the extent to which the pressure effects of any local increase in tension were transmitted to the medulla, where seemingly the vasomotor center assumed the regulatory function of holding the blood pressure at a level in excess of the degree of the medullary compression; in other words, at a level sufficient to insure a continuance of circulation at the bulb. It was with the hope of corroborating these observations on cases of compression in man that led, as stated elsewhere, to the introduction of the Riva-Rocci blood-pressure apparatus, an instrument which, in spite of its many deficiencies, has served a very useful purpose. Cases of ganglion extirpation by any method in which a greater or less elevation of the temperosphenoidal lobe is occasioned are the counterparts, so far as their cardiovascular reactions are concerned, of experimental conditions in which local compression is exerted or of certain clinical cases as, for example, traumatic extradural meningeal hemorrhage. They are associated with a slowing of the pulse, and, if the compression is of sufficient extent or so exerted as to transmit its effects to the vasomotor as well as to the vagus center in the medulla, the former is likewise stimulated by stasis anemia and there is a resultant rise in blood pressure. The vagus response, the slowing of pulse, is familiar to all who have carried out this operation, and an illustrative chart of pulse rate alon-

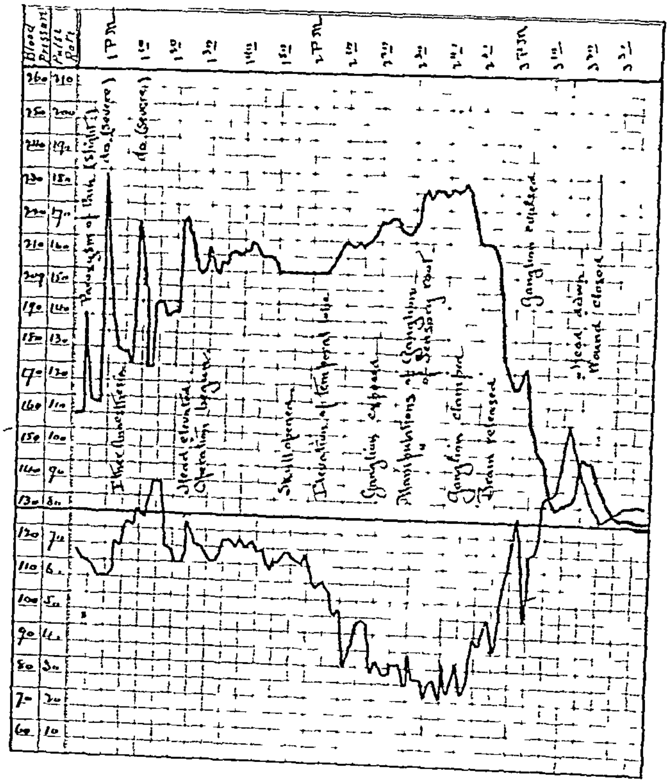

Fig. 2.—Chart of pulse rate and blood pressure during operation. (Case 7.) Note: 1. The pressor responses during the paroxysms, before the administration of ether, unassociated with change in pulse rate. 2. The vasomotor response to 233 mm. of Hg during elevation and compression of the temporal lobe and the corresponding retardation of pulse to 30 beats a minute from vague stimulation. 3. The return of blood pressure and pulse rate to their normal level, after releasing the compression. The upper line represents the blood pressure in mm. of Hg, and the lower line the pulse rate.

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[24] Verhandlungen d Deutschen Gesellschaft für Chir. 30th Congress, 1901, p. 33.

given in my earlier paper. A combined chart showing alterations both in blood pressure and in pulse rate was first taken in Case 7 of the series and is here reproduced (Fig. 2). The reaction shown in this figure is very pronounced, more typical, in fact, of the experimental reaction than is usual, since, in the majority of cases operated on by the low method, the degree of compression, though enough to evoke a vague response, does not always suffice to stimulate the vasomotor center and produce such an enduring rise in blood pressure as is plotted in this figure. Not uncommonly one sees a very irregular systolic curve, accounted for, I presume, by the pressor responses brought about by manipulations *of the sensitive dura and of the trigeminus itself.* An indication of the great pressor excursions which, without alteration in pulse rate, accompany the neuralgic paroxysms is also present on this chart, and I can not but believe that the arteriosclerosis, which is so common an accompaniment of long-standing cases of tic douloureux, is with greater probability consequent on the high-pressure pulse than that the vascular changes, as is so commonly thought, are in themselves a causal factor in the neuralgia.[25] On the next occasion of removal of the ganglion (Case 8), the fatal one of my series, a warning depressor response occurred which was unheeded. It proved to be a comparatively simple, dry operation, and yet it was characterized by a constant fall in blood pressure which showed itself before any change in pulse or respiration was apparent to the anesthetist or to the operator. Had this warning of the failure of the normal compression reaction been accepted, the painful necessity of recording a death in this series of cases might have been avoided. It will be seen, *on consulting the chart (Fig. 3), that* the usual reactions on elevation of the temporal lobe did not occur. Since this sorry lesson was learned, implicit reliance has been placed on these readings, and I doubt not that accidents have been averted thereby. No definite reaction has been seen to result from the evulsion of the sensory root. A fall in blood pressure at this time may appear on the charts, but this fall is probably due to the immediate release of the temporal lobe from the compression which follows the extraction of the ganglion. Once or twice, however, I have thought that a depressor response was occasioned by the extraction. It would seem also that the severe sensory impulses in*duced by the surgical traumatism of the* ganglion would always be productive of postoperative shock, and with this thought in mind I have occasionally endeavored thoroughly to cocainize the ganglion after its exposure and then to carry out the manipulations necessary to free it. I have not been at all convinced that anything had been gained thereby, and, indeed, the fatal case of the series had been so treated.

CLINICAL HISTORIES OF TWENTY CASES WITH COMMENT.

The quotation which was borrowed as an introductory paragraph for this paper makes reference "to the marked similarity that one case bears to another both in course and symptoms," and for this reason the first case alone in the following *series will be recorded in* some detail in order that an idea may be conveyed of the type which is considered "major neuralgia." A recital of the other cases would be unnecessary were it not for *dates and ages and data* pertaining to the varying instances and complications of the operative and post-operative periods, for the similarity which in each case characterizes the ante-operative chapters does not always apply to the subsequent story.

It is almost superfluous, indeed, to give any illustrations of a malady the clinical aspects of which are so sharply cut. In its major form, however, the disease is not a common one, though when present it claims its victim to the end. A retired physician who has had a long and active practice in private and in hospitals of *almost fifty years tells* me that only two instances of the malady in its extreme form have ever come under his observation. Both of them ultimately were suicides.

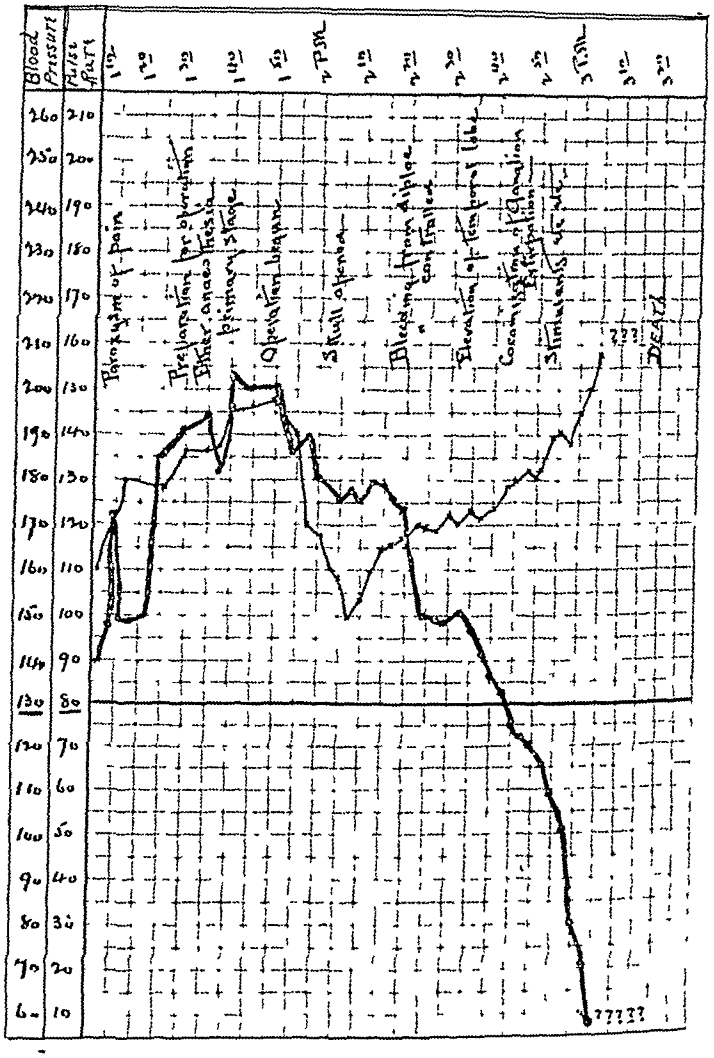

Fig 3.—Chart of pulse rate and blood pressure in the fatal case (Case 8) Note: 1 The rapid pulse (145) and comparatively high blood pressure (200) during the preparation of the patient and early stages of anesthesia (ether). 2. The drop in blood pressure and rise in pulse rate due to a very slight *loss of* blood from the diploe 3 The immediate and persistent fall in pressure and increase of pulse rate contrary to the *normal reaction* during elevation of *temporal lobe and removal of* the ganglion, this procedure requiring only twenty minutes. Cessation of cardiac action. The heavy line represents the blood pressure and *the light line the pulse rate.*

I doubt not that it has been the experience of other surgeons, to whom have finally drifted a considerable number of these unfortunates, to find that they have determined to submit themselves to the "deep operation," so called, contrary to the advice of their medical attendants, and have been told that deformity, blindness, insanity and worse is almost an inevitable sequence. Patients (two of them) have later acknowledged to me that they had come to the hospital courting death on the operating table. It is from patient to patient, rarely from doctor to patient, that the knowledge of possible surgical relief is passed along, and it is lamentable that this final procedure should be so generally regarded as one "hazardous in its performance and uncertain in its permanent effects."

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[25] An interesting sequel of the hypertension during the paroxysms has recently come under my observation. A woman, aged 64, a sufferer for years with major neuralgia, had a slight stroke of apoplexy after an unusually severe paroxysm of pain Her radial artery was distinctly palpable, and before the operation (a peripheral one) her systolic pressure in a period of comparative freedom from pain registered *over 200 mm.* of Hg It was much higher during a paroxysm A week after the operation it was about 70 mm. lower.

Case 1.—Surgical No. 9257. Right-sided major neuralgia originating in the third division. Duration ten years. Two earlier peripheral operations. Total extirpation. Well after four years.

Patient.—James W., aged 63, entered the Johns Hopkins Hospital August 2, 1899.

History.—He gave the usual pitiful story of a sufferer from tic douloureux. He had been a prosperous sea captain until the onset of his neuralgia, which had forced him to abandon his profession, and he had spent the last decade of his life and all his savings in the fruitless endeavor to obtain permanent relief from pain. All forms of treatment, orthodox and otherwise, had been given a trial. He had once been seriously poisoned by strychnia, the dosage having been gradually carried up to 1/7 grain every three hours. He had run the usual gamut of other drugs. Morphia in large doses crazed him, but had little effect on the pain. All his teeth had been extracted. In July, 1896, a peripheral operation was performed with but a few months' respite. In June, 1897, a double operation was undertaken, when both the *N. maxillaris* and *N. mandibularis* were evulsed. The pain returned with renewed energy shortly after. For the past two years he has been practically bed-ridden; has "lived without sleep"; has been for weeks at a time maniacal from pain and from drugs given him for its relief. He returned to the hospital desperate, threatening suicide unless something be done to effectually relieve him.

Character of the Neuralgia.—There is apparently no etiologic factor to which it can be definitely attributed. He has led an exemplary life; had typhoid fever when a young man and the "chills and fever" usual to his district, but remembers no other maladies. Frequent exposure to severe weather has been a requisite of his vocation, but he does not associate the onset of his pain with any such causal factor. The pain originated in the apparently sound teeth of the lower jaw; has spread progressively into the other sensory areas of the fifth nerve and has steadily increased in severity. All three trigeminal divisions are now affected. There is also a cervical and suboccipital extension. There is constant pain in the face, with exacerbations which occur, regardless of apparent cause, with an average interval of ninety seconds. The paroxysms usually originate in the lower lip just below the corner of the mouth, with an abrupt onset, after which the pain quickly spreads across the face, through the eye, into the forehead to the vertex and thence to a spot on the temple where "a final vicious twist" is given to abruptly end the acute stage.[26] The entire paroxysm lasts about 40 seconds. Its onset is described as "a devil twisting a red-hot corkscrew into the corner of the mouth." A diagram was made on which the patient roughly traced the course of the pain. It travels slowly between the points of onset and departure. It does not (as is often the case) dart between the chief pain points. There is also intraoral pain and he often begs to have it taken out of his mouth A mental and an infra-orbital area of hypesthesia remain in consequence of the peripheral operations. These territories, however, though "numb," are exquisitely sensitive to many forms of stimulation. An accidental touch of the moustache or beard, any movement of the lips, palate or tongue, inaugurate a paroxysm so that talking is almost precluded and deglutition regarded with fearful apprehension. During a paroxysm the trigeminal field flushes greatly, the eye becoming injected, the temporal artery more prominent, and there is an excess of tears and saliva. Immediately after a paroxysm he would stealthily introduce a spoonful of warm liquid nourishment into the sound corner of his mouth and swallow it reluctantly.

Physical Examination.—An emaciated old man, looking fifteen years more than his age. His weight is only ninety pounds. He is unkempt to a degree, with white tangled beard and moustache. The right side of his face is greasy and dirty, having been unwashed for many weeks; the beard is matted with epithelial scales and sebaceous accumulation. He is red-eyed from loss of sleep; saliva drools constantly from his toothless mouth. He writhes frequently with pain, which distorts the right side of his face and occasionally makes him cry out. Unless endeavoring to take nourishment, he lies during his period of comparative freedom absolutely motionless, "always on a strain," apprehensive of the certain return of pain; altogether a most pitiable object.

There were no evidences of renal, pulmonary or cardio-vascular changes to correspond with his apparent age and physical condition August 4, 1899.

Operation.—Chloroform anesthesia. The operation was carried out on the principles laid down in my first paper. The case proved to be (as later experience has shown) an exceptionally dry one. A much larger skin incision was made than necessary (Fig. 4), and the anterior leg of the incision was carried down to the zygoma. This occasioned a postoperative palsy of the orbicularis, which fortunately was only temporary, and the error was corrected in the later cases. The zygomatic arch was excised. Avoidance of the meningeal artery was easy and no hemorrhage was encountered by the method of approach. The only bleeding which sufficed to cause any delay followed the separation of the inner edge of the ganglion from the side of the cavernous sinus. It was presumed that the sinus was injured. A few moments' pressure of gauze, aided by an inward depression of the spatula used to elevate the temporal lobe, sufficed to check the bleeding completely. Subsequent conditions showed that it had also sufficed to injure the *N. abducens*. The ganglion with the sensory root was extracted practically intact. A portion of the ophthalmic division was later removed from the sinus (cf. Fig. 5 and Dr. Spiller's report[27]). Some cerebrospinal fluid

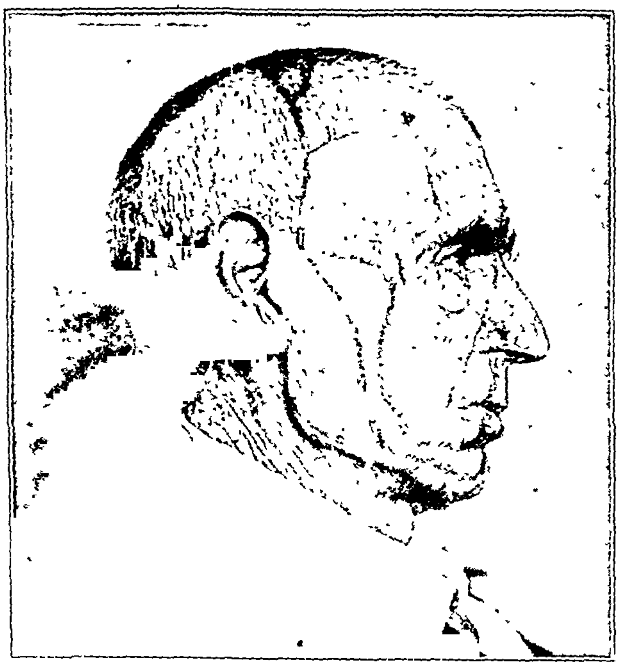

Fig. 4.—Case 1. Ten days after operation. Areas of anesthesia are inaccurate and plotted for pain only. Incision unnecessarily high. Scars of earlier operations.

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[26] Just as in Jacksonian motor epilepsy, there is evidence often of a definite march of symptoms during the paroxysm from division to division in sequence. The experiments which I undertook with Dr. Barker sufficed to show that the grouping of cells for each division of the nerve is quite distinct. They become involved in the disease process, whatever it may be, in sequence, they "discharge" during a paroxysm in sequence. Sensory epilepsy so-called

[27] Spiller: The Journal A. M. A., May 5, 1900, p. 1094, Case 1.

followed the extraction. The wound was sufficiently dry to justify closure without drainage. During the late stage of brain elevation the pulse was slowed from its normal level, under the narcotic, at 90, to 50 beats per minute. Duration of operation, one hour and twenty minutes.

Postoperative Notes.—Convalescence was uneventful. He slept uninterruptedly eight hours the night of the operation. "My first long sleep in nine years," he said the next day. There was no postoperative nausea and he began to take nourishment ravenously.

The sutures were removed from the wound on the third day. The healing was without visible reaction. There was slight lagophthalmos of the right eye owing to palsy of the orbicularis from proximity of old infraorbital and recent ganglion incisions. There was internal strabismus. Paralysis also of the sympathetic, causing a greatly contracted pupil. These palsies disappeared in a few weeks and fortunately, considering the slight ectropion from the old infraorbital scar, there has never been any subsequent inflammatory disturbance with the eye. No taste impulses from the right side of the tongue (apparently the left side was not tested, for an examination in May, 1900, showed complete absence of taste perception anteriorly on both sides). A photograph (Fig. 4) was taken on the tenth day, showing the areas of anesthesia as they were then roughly mapped out.

The patient began rapidly to gain in weight and when examined again (May, 1900), after nine months, weighed 130, a gain of 40 pounds. A photograph taken at this time (Fig. 6) shows the area of persisting anesthesia.

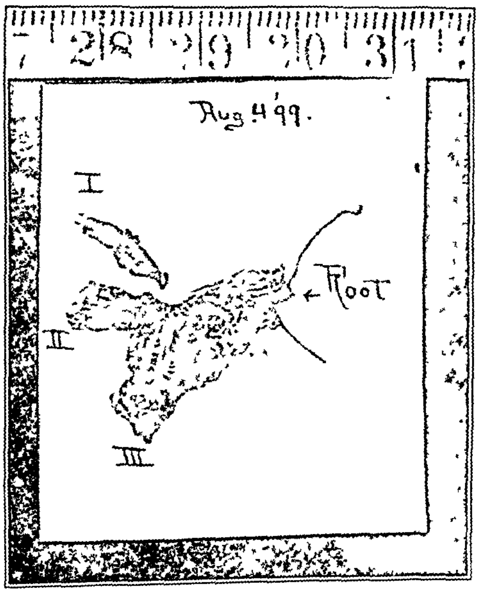

Fig 5 —Ganglion from Case 1

It should be noted that in the examination of the ganglion removed in this case, Dr. Spiller found evidence of pathologic alterations in the sensory root. Such a condition had before been observed only in one case, by Krause, though to be sure, comparatively few opportunities had been offered for the study of this structure. In Krause's case, pain returned on the other side of the face, and it naturally led to the suspicion that in these instances in which evident morbid changes had passed beyond the ganglion cells themselves and the sensory root become involved that there might be a recurrence of pain, even after removal of the ganglion. Fortunately, our fears that this might take place in this patient seem to have been ungrounded.

Late Result.—At present, four years after the operation, he writes: "My face has not given me any trouble whatever since the operation was performed, neither have I been troubled with my eye. I weigh 126 pounds, which is my usual weight. My general health is good and I have a splendid appetite."

Case 2.—Referred to me by Dr. Clopton of St. Louis.

History.—Mr. W. E., aged 55. He had been a prosperous business man, of good habits and sound health, until incapacitated from work eleven years ago by his neuralgia. He had long before been subject to severe hemicranial headaches. The pain originated (1887) in the infraorbital region of the face; it was sudden in onset, and remitted and recurred with ever-shortening intervals and increasing severity. All forms of treatment were tried; everything was sacrificed, home, business and savings, in the effort to find relief. The teeth were

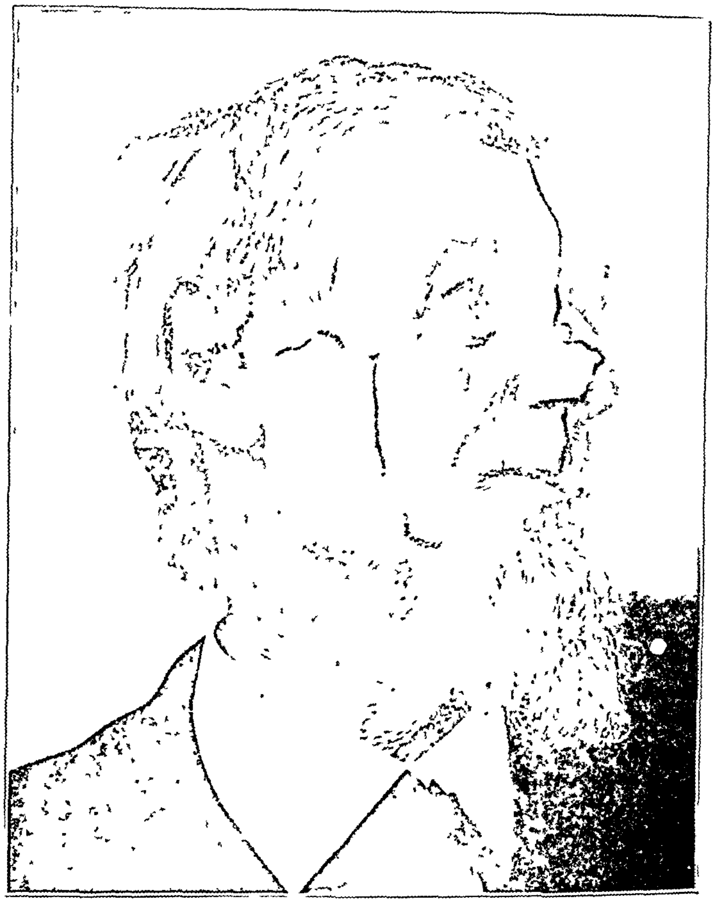

Fig 6.—Case 1 Nine months after operation, showing area of remaining tactual anesthesia. Zygoma excised, leaving very slight deformity.

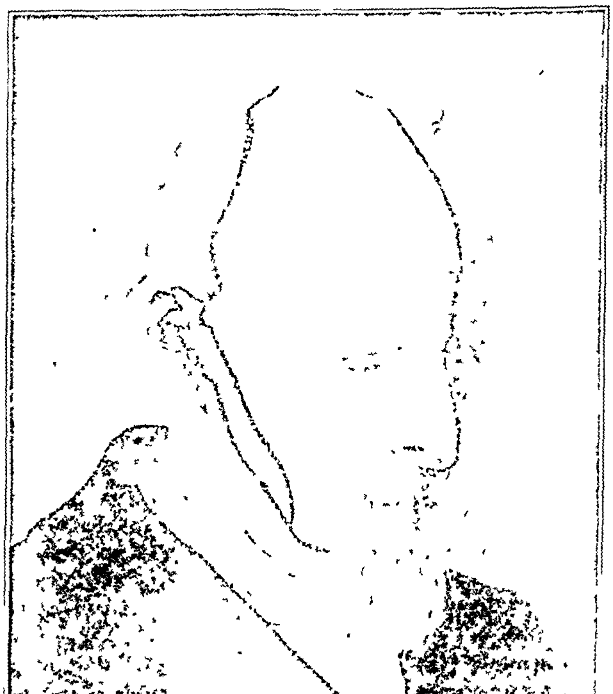

Fig. 7.—Case 2. Eight days after operation. Areas of anesthesia to pain alone. Scar practically invisible.

extracted. A neurectomy of the *N. infraorbitalis* was performed in 1892, with eighteen months' respite. Pain returned and soon the first division became involved, and not long after the paroxysms radiated through the entire trigeminal area. He had been drugged to the top notch. For several months he had lost all inhibition and had appeared maniacal at times and had been in confinement. There was loss of sphincteric control. Weight, 120 pounds; 40 under normal. He had had for several months rapidly recurring paroxysms, often with only a few seconds interval. Pain had made "a frightful hell of his existence" He represented the most severe possible

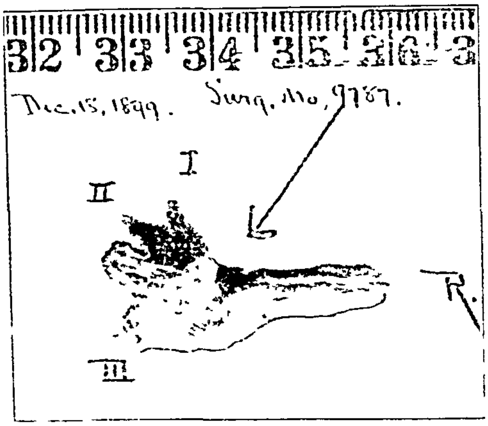

Fig. 8—Ganglion from Case 2; intact; under surface Showing motor root lying above sensory root. Arrow points toward imprint of forceps used for evulsion

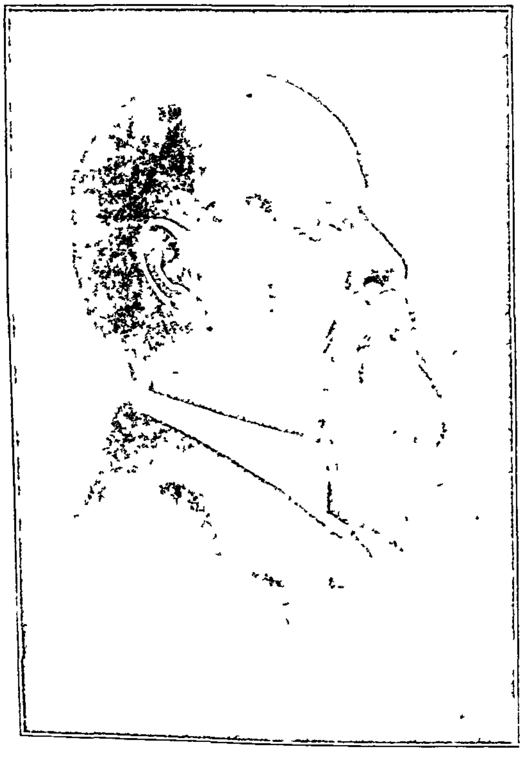

Fig 9—Case 2. Photograph taken (three years after operation) with light directly overhead so as to accentuate, by shadows, the deformity from the atrophied temporal and masseter muscles; zygoma replaced in this instance.

type of major neuralgia. I have only seen two other instances which approached it in severity (Cases 7 and 16), and in which from drugs and suffering the patients had become equally irresponsible.

Operation—December 18, 1899. Chloroform. Duration, 1 hour, 20 minutes The zygoma was only temporarily resected. This was an exceedingly dry case, without incident worthy of mention. There was usual slowing of pulse to 50 during elevation of brain. The wound was closed without drainage, and the sutures were removed on the second day. Healing, was perfect and the scar almost invisible. (Fig. 7). Anesthesia was complete to all forms of sensation in the trigeminal territory and remains so to the present day. Temporary internal strabismus occurred from pressure palsy of the abducens Tissues (Fig. 8) reported on by Dr. Spiller.[27]

Postoperative Notes.—Nausea was present for two or three days and an abundance of tenaceous saliva for several days. Soon an inordinate appetite appeared. He gained seven pounds in the ten days after operation, and ultimately gained 41 pounds.

He returned to the business he had abandoned years before and has remained (3½ years) perfectly well. There is some deformity from temporal atrophy. (Fig. 9.)

(*To be continued.*)

SOME MINOR OR BORDERLINE PSYCHOSES OF ALCOHOLISM.*

FRANK PARSONS NORBURY, A.M., M.D.
JACKSONVILLE, ILL.

The following case is representative of a class of minor psychoses, psychoses peculiarly a feature of alcoholism.

CASE 1.—Man, aged 42; married; farmer, with no family history of mental or nervous disease; with no history of previous serious illness; syphilis denied.

History.—For a number of years, at least twenty, has been given to drinking "bouts," not marked with periodicity and largely a self-willed desire to drink more for social reasons and to sustain a reputation which he had earned of being able to drink any man in the county under the table. In addition he was regarded as "the strong man" in the community. He was of athletic build, 6 feet 3 inches tall, weight 370 pounds, proportionately distributed. As a young man he was the champion wing shot, trap shooter and rifle marksman of the county. His desire to excel extended to his ability to drink whisky, and it was his boast that he could drink a quart of whisky a day and not be drunk nor manifest any of the ordinary symptoms of acute alcoholism. Nor did the continuance of drinking over a protracted period of time greatly disturb him. About eighteen months ago, largely on account of his wife and children, of whom he was very fond, and because he found that to keep up the pace he was going was very expensive, he decided to quit drinking, and in his usual manner of doing things he "stopped short," and following this abrupt cessation there was some physical collapse. Soon after he began to complain of indigestion and constipation, and progressive loss of weight. He consulted his physician in a neighboring town, who said there was evidence of disease of the liver and prescribed accordingly. His further history along this line I will mention later.

Present Illness.—The history of the mental aspect of the case was contributed largely by his wife, who was an intelligent, self-possessed and devoted woman. She said that soon after his physical health became impaired he began to show mental peculiarities; he became morose, showed evidences of suspicion regarding her; he would watch her every movement about the house and, finally, one day while they were alone, he accused her of infidelity and named the farm hand employed on the farm as "the second party to the scandal," as he called it. She naturally was very much shocked, hurt and overcome by his accusations, resented them and regarded him as insulting her. She, however, was a sensible woman, and being a woman of high character, secure in her virtue, began to think what all this meant, and her conclusion was that her husband was not himself. She kept this thought to herself for a time, believing that his condition would change, but instead of improvement she noticed its continuance, but with this striking feature—a marked periodicity of the mental symptoms.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

On the day he accused her of infidelity he discharged the farm hand and peremptorily ordered him to leave the country, which he did, but all of the time unaware of the accusation made against him. The young man bore an excellent reputation. He did leave the country, went to Kansas, and has never returned.

However, the patient thought the young man was loitering in the neighborhood and again accused his wife of being untrue to him, saying that she was holding clandestine meetings with him. This opinion continued to grow, but was only a feature every third day. The history says that about every third morning he would awaken with this suspicion fixed in his mind; he would accuse his wife of the clandestine meetings; he was melancholy and would remain in bed, darkening his room, and would not permit his wife or children to enter his room. He woud not eat, nor even take water until toward evening, when this cloud of depression would slowly begin to vanish. Then, perhaps, or if not then, at least the next morning, he would call his wife to him, ask her pardon for his conduct, and would say: "Now, dear wife, those awful thoughts are gone."

For the next two or three days he would, as his wife expressed it, shower his affections on her. He would be up and about the house and attend to his farm duties so far as his strength would permit. This went on for two or three months *before the wife felt she could tell her family physician. Up to* this time no one except husband and wife knew of these trials and tribulations. The wife noticed that while the periodicity of these manifestations was the same, his conduct toward her was becoming more alarming. He armed himself with a revolver, which he kept under his pillow, and under no consideration would he allow her to handle it or to put it out of his sight. She finally decided that something must be done, especially after one night's experience when he threatened her life. As soon as the period of depression and delusion was over and after he had again asked her pardon, she wisely said to him: "Now, let us call in our family physician and see if he can not agree on some plan to help you." He acquiesced in her suggestion and accordingly the family physician, in the presence of both husband and wife, heard their sad experience. He suggested consultation and it was at this juncture that I came into the case.

Examination.—The patient, at the physician's suggestion, was brought by him to see me. The following briefly is the account of my examination:

For four months or more he has complained of anorexia, fullness and distress after eating, eructations of gas, sometimes fetid, constant expectoration of frothy mucus, some nausea and occasional vomiting. The patient showed evidences of wasting; he evidently had lost nearly a hundred pounds in weight; his muscles were soft and flabby and the skin was not clear. Examination confirmed this catarrhal disturbance of the stomach; there were prominent superficial abdominal veins, a retracted abdomen, liver not palpable, lessened area of liver dullness, a feeling of pressure and dull pain on palpation over right epigastrium.

His heart showed a slightly accentuated second sound at the aorta; no murmurs; pulse was increased, about 90; had slightly increased tension; good rhythm.

The urine was darker than normal; high specific gravity, 1028; urea diminished; urates in excess; oxalates in excess; no sugar; no albumin; indican reaction present; no casts.

The special neurologic examination was negative, except that there was marked history of sleep disorder. His sleep was disturbed and presented the interesting disorder of dreams occurring on the night preceding the day of his depression. In fact, he would awaken from his sleep with a start after a dream, which seemingly was firmly fixed and was to him a reality. This dream, always the same, pertained to the infidelity of his wife. This dream was the basis of what he seemed to regard as facts of this unfortunate affair regarding his wife. I should say occasionally other sexual dreams were present, but never on the night previous to his day delusion.

He presented a picture of remorse as he recited his own version of the story and said in vindication: "Doctor, those thoughts appear to be based on facts as real to me as my presence here." "They come and go and I can not control them." "They are with me when I awaken." "They leave me usually by night."

It seems the delusions were more intense in the morning soon after awakening, and as the day went by they slowly faded. Following this day of delusions he was usually depressed, but he was clear and save for the remorse over his dreadful thoughts, because of the sorrow to his wife, he was in fair spirts, rather optimistic, in fact in everything else, except that he occasionally worried over business affairs and later over some loss of sexual power. This is the history up to his entering on hospital care.

Treatment.—I have had him under my care now about eight months, the first six weeks in bed and away from home. I would have liked to have him remain longer away from home, but this circumstances would not permit. I saw him at least every other day and observed him carefully and noted this periodicity. He would not talk freely about his condition to others. After his physical health began to improve, the mental symptoms were modified in severity, but were not removed. He was in bed under rest and appropriate feeding, and internal medication was directed toward thorough elimination, to correct so far as possible the errors of metabolism indicated in the urine.

Result.—He gained twelve pounds in weight in three weeks and sixty pounds in four months, but in spite of his improved physical condition the delusions have continued with the same periodicity, but greatly lessened in intensity. He says now that the condition "is only a reminder of former beliefs."

When we proceed to analyze the morbid psychology of this case, considering the physical facts, we find a complex condition. First, it is possible we have to deal with a case of cirrhosis of the liver, as the physical history is not unlike that met with in atrophic cirrhosis of the liver. This impression is even intensified by the fact that digestive derangement continues in a mild way. This shows the importance of a broad knowledge of internal medicine as a necessary feature of diagnosis in cases presenting a history of alcoholism.

Second, the differential diagnosis is to be made by considering that this is a toxic case, undoubtedly, and of alcoholic nature. We can eliminate heredity, that remorseless factor which is so prominent in the minor psychoses of alcoholism.

We have to consider the direct effects of alcohol on the nutrition and the factor of personal resistance which should be recognized as of great importance in considering the psychoses of alcoholism.

In this case we have to deal with a man who for years had used alcoholic liquors without apparent bad results until he suddenly ceases; then it is shown that his physical health has certainly suffered and his nervous system has not been made immune to the toxic effects of the alcohol and the cumulative results are shown in this rather unusual intermittent type of mental disorder. I have tried to account for the *modus operandi* of the alcoholic effects in the periodic phenomena and especially of paramnesia, which seems prominent in this case.

It is a fact, as demonstrated by Kraepelin and Smith by their psychophysical experiments that the effect of alcohol is not apparent (in average dose) until late after it has been ingested; then the increase of automatic over voluntary cerebral action is noted. The ent were the fixed delusion that he was to be arrested and pain in the left frontal region, with a very slight difficulty in the movements of the left eye. The pain was extremely intense at times, but as in the cases reported by Dr. Keen, it was easily relieved by the administration of a few grains of phenacetin. Ophthalmoscopic examination revealed a very slight beginning stasis in the fundus of the left eye. The diagnosis of tumor of the left frontal lobe was made. Some months previous to all this he had had one convulsive seizure and a vomiting spell, which was attributed at that time to the fact that he had some gastric trouble. Immediate operation was advised and arranged for the following day. Before the time set for the operation the man had a second convulsion and died therein. The next day, instead of an operation a postmortem was performed and the following conditions found: In the left frontal lobe there was an infiltrating tumor which had not reached the cortex at any place nor to within from one-fourth to one-half inch thereof in any particular part; nor was there any evidence microscopically of infiltration of the cortex proper. The tumor was of the glio-sarcomatous variety. The dura was not involved, nor was the pia, and although operation had been advised for this patient, the chief symptom was pain in the left frontal region; that, together with the mental symptoms and very slight stasis, were the only symptoms indicating a gross lesion of the brain. The tumor was about the size and shape of a small egg with ramifications running out from the periphery; it was of an infiltrating character and the ventricle on the left side was almost obliterated, whereas the ventricle on the right side, which was not involved by the tumor, was dilated to an intense degree. The aqueduct of Sylvius was widened, and Dr. Sterne attributed the sudden death to the forcing of the fluid from the right ventricle to the fourth ventricle through the aqueduct of Sylvius. He believes that the man suddenly died from pressure in the fourth ventricle. He could find no other condition which would lead him to think that the man's death was due to any other cause. This illustrates the possibility of death from pressure in the fourth ventricle due to a lesion in the frontal lobe, and is an instance of early diagnosis of cerebral tumor where the objective symptoms were meager.

DR. W. W. KEEN, Philadelphia, stated that he always sutures the dura whenever possible. In many cases one can not suture the dura accurately, but the margins can be approximated within 5 or 6 mm. and very commonly within 1 or 2. The only objection that he can see to it is that it takes a little more time, probably two or three minutes, and he does not consider that a valid objection. Dr. Keen agreed with Dr. Mills that in all cases the operation should be done early, especially after the use of the iodids in suitable cases for a period of about six weeks. He thinks the great difficulty in many cases of tumor is that they have been allowed to go too long, and have become so extensive that the damage to the brain is very great and the dangers and difficulties of operation are enormously increased. He called attention to the very rapid growth of the tumor in the case reported by Dr. Brown and himself. The first symptoms appeared in March and the case was operated on in August, so that in less than six months there was a tumor involving the entire frontal lobe of the brain, in front of the biauricular line, and the right hemisphere as well. It grew rapidly and even gnawed through the bone, so that there were soon holes through which the tumor protruded. In cases of optic neuritis Dr. Keen agreed with Dr. Mills, and in all cases would like to operate as early as possible, after waiting a reasonable length of time for possible localization and for possible effect of remedies. He has found in many cases the optic neuritis to be arrested by operation and in cases of severe headache the relief is almost magical. He recently operated on a case in which not only was the tumor not found, but he had no expectation when he did the operation of finding it, but in any event he desired to relieve the headache. In that case he made a large opening, removed the bone entirely, and allowed the scalp to come directly on the dura. The man's headache was entirely relieved, and the eye symptoms at least have grown no worse; whether or not they will be improved one can not yet tell.

DR. F. W. LANGDON, Cincinnati, said that it was a fortunate occasion which led to the connection of the case reported by Drs. Kendig and Wolfstein with his notes. He was invited by Dr. Kendig to look at a very interesting brain, of which he had no history and no account of the patient. In looking at the tumor, which was a large mass nearly as large as a hen's egg, and which involved the optic chiasm, Dr. Langdon noticed the initials of the patient and asked the man's name. He then referred to his notes and found that the patient was first sent to him seven years before his death by an oculist who had made a diagnosis of locomotor ataxia causing optic atrophy. Dr. Langdon negatived the idea of any ataxia; there was no Argyll-Robertson pupil, though there was a sluggish pupil due to atrophy in the optic nerve; there were no crises nor any sensory disturbance; in fact, nothing on which to base the diagnosis of locomotor ataxia. At that time there was no vomiting, no cardiac symptoms and nothing to indicate brain tumor, notwithstanding that the tumor must then have been in progress. Probably a year and a half afterward the patient came back from another oculist with a diagnosis of paresis, which Dr. Langdon also was compelled to negative. The patient presented no symptoms of paresis with the exception of a mild emotional state and a tendency to weep without cause, but which he attributed to the death of his mother. There were no other symptoms of paresis, and while at times, perhaps, the man felt cheerful, there were undoubtedly times at which he felt unduly melancholy; it was a changeable emotional state with no other signs of paresis. He asked Dr. Langdon's advice about going on the road, as he still had a position, and he was told to go. He came back in rather better condition and asked Dr. Langdon's advice about getting into a home, and some of his relatives put him in a charitable institution. Afterward he was taken to the Cincinnati sanitarium of which Dr. Langdon was the medical director, and admission asked for him in order that he might be under observation to see if anything could be done for his insanity, which had become a state of mild dementia. He still presented no evidence of paresis and no ataxia. There were slightly increased knee jerks, but there were no symptoms indicating either brain tumor or locomotor ataxia; at times there were symptoms of mild dementia. He recognized Dr. Langdon, though it was practically five years since he had seen him. He was always pleasant and always got up off the lounge, where he spent most of his time, when Dr. Langdon entered the ward. After remaining a few months he was pronounced incurable, so far as his dementia was concerned, and he was, for financial considerations, removed to the state hospital. It was within a few days after his removal there that he died. There was neither paresis nor locomotor ataxia, nor any symptoms of brain tumor; and if there had been it is evident that an operation would not have been attended with brilliant results. Dr. Langdon considers the case extremely interesting from the standpoint of its negativeness, and agreed with Dr. Mills that there ought to have been some more grave symptoms. This was a hard, encapsulated tumor which exerted a great deal of pressure on the membranes at the base of the brain and ought to have caused a great deal of pain, which it did not. The case is one of a great deal of interest from this point of view.

DR. F. X. DERCUM, Philadelphia, stated that he had had an opportunity to examine the case reported by Dr. Keen, and could confirm Dr. Keen's statements as to the inconsequential character of the headache. Dr. Dercum mentioned a similar case on which Dr. Keen had operated, and in which there was most extensive angiosarcoma of the frontal bone with absolutely no headache. The bone was very thin almost like a piece of writing paper. In another case on which Dr. Keen operated, and which was reported by Drs. Dercum and Keen jointly, Dr. Keen removed an enormous tumor, and while there was tremendous thickening of the bone there was, for some unknown reason, no pain.

DR. WILLIAM G. SPILLER, Philadelphia, stated that paralysis of the external rectus is not always of value as a localizing sign in tumor of the brain, as this nerve, on account of its long intracranial course, may be injured by pressure exerted at a distance. The tendency to silliness on the part of the patient in speaking, and to the attempt to speak like a child, is a little in accordance with the tendency to make jokes observed in case of tumor of the frontal lobe. Dr. Spiller said that Dr. Langdon's report does not state whether there was, in the case to which he referred, bilateral temporal hemianopsia. This condition may be looked for when the tumor is at the chiasm. Tumors at the base of the brain often are exceedingly difficult to diagnose, because of the general symptoms of pressure. Disturbance of smell is in some cases not important as a localizing symptom. Six or seven years ago Dr. Spiller had a case in which there was a tumor over the pons extending downward on the spinal cord, and causing very early loss of smell. Some years ago he had a case in which much thickening of the skull occurred over the tumor, and was caused by infiltration of the bone of the tumor.

Dr. B. Onuf, Sonyea, N. Y., asked what should be done in cases of incipient tumors with marked optic neuritis, in which an accurate local diagnosis can not be made. He thinks it has been reported that a relief of pressure is sufficient to bring about a restitution of vision, and he would like to know whether that experience has been repeated. It is of very practical value to know whether an operation should be advised or whether the patient should be advised to wait until an accurate diagnosis can be made. If restitution should take place the patient with optic neuritis would again be restored to vision, and the question arises, how long is it safe to wait; how long can the optic neuritis last and yet recovery take place?

Dr. Charles K. Mills, Philadelphia, in replying to a statement, said that he would advise operation at once in a case of the kind mentioned, with this qualification, that sometimes it is advisable to wait for a short time for the development of focal symptoms which are suggestive; even in the absence of such symptoms, however, he believes that operation should be done to relieve optic neuritis or headache, or both. In a number of cases he has seen optic neuritis relieved by operation. He believes that in some syphilitic cases the operation should be done where the diagnosis of syphilitic affection has been made. It is a curious fact that in some cases the anti-syphilitic remedies relieve the symptoms more thoroughly after the opening of the skull, and they should, of course, be continued. He believes that the mistakes which have been made with regard to opening the head have been in the direction of ultra-conservatism.

Dr. David I. Wolfstein, Cincinnati, said that it does not seem from the description Dr. Keen gave of his case that it could be confounded with a tendency to joke. A question of interest in connection with the case, inasmuch as the tumor involved the right side, is whether there was anything there present which could be construed as intracerebral ataxia. In the case which Dr. Wolfstein reported, inasmuch as the asylum physician reported the presence of progressive dementia, he thought that he could explain the absence of all general symptoms by the presence of this dementia, but inasmuch as Dr. Langdon does not think dementia was present, it can not be explained on that ground. The tumors at the base of the brain are not necessarily accompanied by intense headache, and the optic neuritis was probably due to pressure on the optic nerve.

Capillary Nevi in the Aged.—A. Bauer, of Paris, holds that the relations between capillary nevi in the aged and lesions or functional disorders of the liver can be absolutely affirmed. The liability to disturbances of the liver during a long life, the frequency of its lesions in elderly people, and the constancy of the occurrence of cholemia, as tested by blood examinations in the cases he examined, lead him to this conclusion, as he announces in a communication to the *Archives Gén. de Méd.*, cxciv, No. 34, 1904.

TWIST OF THE PEDICLE OF OVARIAN CYST COMPLICATING PREGNANCY.

A CLINICAL LECTURE.[*]

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FORT WAYNE, IND.

Gentlemen:—As our patient is anesthetized, we will proceed at once with the operation for the removal of the abdominal tumor, which you see we have here, and will read the history of the case later. Note that the peritoneum is slate-colored, as it always is with blood under it, and that on opening it a quantity of bloody serum runs out. Now that I retract the edges of the incision, note the color of the tumor, which presents slate in some places and deep cherry in others. I have now tapped the cyst and, as you see, the contents are bloody. I gradually deliver the cyst as it is emptied, and you note the numerous but easily separated adhesions. Through these adhesions these cysts are sometimes nourished after the pedicle has been completely divided by twisting. Now I deliver the tumor and show you here the twist in the pedicle which accounts for the blood in the tumor, as well as for that in the peritoneal cavity. The tumor springs from the right side and the pedicle presents, as you see, two complete sinistrospiral twists in accordance with Freund's law, which is based on the theory of Goodsir and Fisher, that all organisms grow in a spiral direction, left-sided ones twisting to the right and vice versa. The ligature is placed on the constricted portion of the pedicle and the sac removed. Now that it is out of the way, I show you, in the left of the pelvis, a good-sized, semi-fluctuating, flesh-colored tumor, which is the uterus pregnant about three months. We will now close the incision in the usual way with layer catgut sutures for the deeper structures and adhesive plaster for the skin. We will direct that this woman be given a hypodermic of morphia should there be any symptoms indicating miscarriage. However, I do not expect her to miscarry, as it is not the rule for these patients to do so. This is the fourth case of the kind in my practice and not one of them has aborted.

HISTORY OF CASE.

Let me now read you the history of this case as it was transcribed by me on her arrival at the hospital, about two hours ago.

Patient.—Mrs. M., aged 24, married four years, mother of two children, the youngest 18 months old.

History.—She made good recoveries from all her labors but thinks her abdomen has been large since her last confinement. When her last baby was three months old she commenced menstruating and did so regularly until July last, since which time, three months, she has not menstruated. She has always enjoyed good health. Several cousins and one aunt died from tuberculosis. Six days ago she was taken with pain in the right side of the abdomen, low down. The pain at first was not very severe, but became so in an hour, and a physician was sent for, who prescribed an opiate. Vomiting occurred soon after the onset of the pain and, like the latter, has continued, but has been controlled in a measure by the opiates. The pain seemed to spread and the whole abdomen soon became tender to the touch. Her bowels had been regular up to the onset of the trouble, since which time they did not move, notwithstanding rather vigorous efforts to make them do so, until yesterday.

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[*] Delivered at Hope Hospital.

Her physician, Dr. Thomas of Decatur, suspected either appendicitis or an ovarian tumor with torsion of the pedicle.

Present Condition.—Well nourished, good color, pulse 120 a minute and of fair volume. Temperature, 100.2 F. Abdomen as large as that of a woman at or near term, and regular in contour.

Physical Examination.—This was quite unsatisfactory on account of extreme abdominal tenderness, which is general. However, a fluctuating tumor can be made out and the uterus seems large and has a soft cervix. There is no localized abdominal rigidity.

Diagnosis.—Pregnancy, complicated with ovarian cyst with torsion of the pedicle and consequent peritonitis. Immediate operation advised and accepted.

You are fortunate, gentlemen, in having the opportunity to see this case, because of the fact that they are not of very frequent occurrence and for the additional reason that they are, in a measure, emergency cases and therefore not often presented for clinical demonstration. The case, too, is quite typical of its kind and this adds to its practical value. This patient thought that she was unusually large but was not aware that she was the possessor of a tumor until she was told by the physician. Quite commonly these patients regard themselves as entirely normal until the torsion of the pedicle occurs, when an examination leads to the discovery of the tumor. As a result of the torsion, these tumors often enlarge rapidly. This is due to the hemorrhage into them and is explained by the fact that the twist relatively completely stops the return of the blood through the outer side of the pedicle, which, as you see, is quite thin, while the inner side, carrying the principal arterial supply, is quite thick and less easily strangulated. The amount of the hemorrhage, both within the tumor and into the peritoneal cavity, varies and may be so great as to prove alarming or even fatal, though this is rare.

I wish to call your attention particularly to the symptoms of bowel obstruction which were present in this case. This is a quite common cause of complaint in these cases. I can now recall two or three cases of torsion of the pedicle of ovarian cysts which were referred to me with the diagnosis of bowel obstruction and in which no mechanical obstruction was found. The bowel may, of course, be involved in the twist or it may be obstructed as a result of adhesions which form as a result of it, but my experience has been, as in this case, that the obstruction is adynamic in character and is a result of the peritonitis or of inhibition of the peristaltic movement consequent on the accident. Both of these factors were probably active in this case.

The treatment of this accident is, of course, operative, and, in my judgment, the sooner the operation is done the better. There are those who advise awaiting reaction when shock is marked, but I do not agree with them, for if the shock is due to hemorrhage it is likely to recur with the establishment of reaction. On the other hand, if the shock is the result of pain and nervous perturbation the anesthetic relieves both of these conditions and the removal of the tumor takes away the cause of them: hence, in my opinion, the best plan is immediate operation.[1]

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[1] At present writing, three weeks after the operation, the patient is up and ready to leave the hospital for her home. Her recovery was uninterrupted by a single untoward symptom.

The shortest and surest way to prove a work possible is strenuously to set about it; and no wonder if that proves it possible that for the most part makes it so.—South.

THE BLOOD IN LOBAR PNEUMONIA,

WITH REMARKS CONCERNING TREATMENT.*

EDWARD C. ROSENOW, M.D.
CHICAGO.

BACTERIOLOGY OF THE BLOOD.

Of the total number of 175 cases of lobar pneumonia in which I have made blood cultures, 145 cases were reported in another article,[1] and 30 have been made since. In this series of 175 cases the pneumococcus was isolated in all but 15—that is, in over 91 per cent. Usually, only one culture (3 to 4 flasks) was required to demonstrate the presence of pneumococci in the blood, though occasionally a second culture was necessary to obtain the organism. In 11 of the 15 negative cases, only one culture was made, there being no opportunity for a subsequent examination. In the remaining 4 cases it was impossible, by repeated cultures, to demonstrate the pneumococcus in the blood. In one of these 4 a careful search in smears prepared directly from the blood showed undoubted pneumococci.

The leucocytosis in these 4 cases was high, and I was inclined to believe that the negative findings were the result, possibly, of an active phagocytosis; but the fact that in other cases with equally high leucocyte counts there were positive results, made this explanation seem improbable. A closer study showed that the cultures with negative results were made within twenty-four hours of crisis, while the cultures which resulted positively were made two or more days before crisis. Hence there seems to be a diminution in the number or viability or both of the pneumococci in the blood at the time of crisis. To this we will return later. Positive results were obtained as early as twelve hours after the initial chill, and as long as forty-eight hours after crisis. Cultures after crisis, however, usually proved sterile.

The mortality in the series studied was almost 40 per cent. The percentage of positive results, excepting the last twenty-four hours of life in the fatal cases, is equally high in the fatal and in the non-fatal cases. This seems to justify the conclusion held by Fränkel, Prochaska, Kinsey and others, that with proper technic blood cultures are of little or no prognostic value, because positive in both the fatal and non-fatal cases. A negative result indicates nothing, except probably that something is wrong in the technic. This is very well illustrated by the investigation of F. C. Kinsey,[2] who studied the blood in 50 cases of pneumonia in the same epidemic. In his first 25 cases positive results were obtained in only 3. After modifying his technic, however, the results in his next 25 cases are practically the same as in this series. Fränkel has had a similar experience.

That the pneumococcus is not only present, but present in large numbers in the blood, as Preble recently showed in a number of cases, is indicated by the fact that by direct examination of smears in this series the pneumococcus was found in 47 out of some 80 cases examined. In no instance could I demonstrate pneumococci in leucocytes.

In the light of these findings we would certainly be more justified in asking why we do not have complications in every case, than by asking how this microorganism gains entrance to the remote parts of the body.

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* Summary of an investigation carried out in the Pathological Laboratory and in the Presbyterian Hospital, under the Alumni Fellowship Fund of Rush Medical College. This paper was read before the Chicago Medical Society, 1904.

[1] Journal of Infectious Diseases, March, 1904. Here also is given a review of the literature.

[2] The Journal A. M. A., March 19, 1904.

In the atypical pneumonias and in vague infections where the diagnosis is otherwise difficult or impossible, blood cultures are of great value. Thus in a case which Dr. J. L. Miller kindly allows me to report, the blood culture was the means of deciding in twelve hours whether an atypical pneumonia following pregnancy was due to a streptococcus infection secondary to a probable uterine infection, or to a pneumococcus infection independent of the pelvic condition. The patient recovered after developing an empyema in which the pneumococcus was demonstrated in pure culture. In 5 other cases in this series the blood examination was the means of making the diagnosis.

By the aid of blood culture the number of cases of pneumonia in which the pneumococcus is found in the blood before any physical findings are present is constantly growing; indeed, cases of pneumococcus infection of the blood have been observed by Preble and others in which no physical signs of consolidation of the lungs were demonstrable, and yet the course was typical of pneumonia. Invasion of the blood in this present series seems to have been *primary in point of time* in at least some cases, and the view that pneumonia may be the secondary localization of a primary blood invasion and not a local disease seems to be gaining ground.

CELLULAR CHANGES IN THE BLOOD.

Böckmann has demonstrated that in pneumonia, as in other acute infections, the number of erythrocytes are inversely proportionate to the degree of temperature. There is scarcely any infection in which the production of anemia is so rapid as in pneumonia.

It is not necessary to speak here of the diagnostic value of leucocyte counts, but I wish to emphasize the impossibility of making a reliable prognosis in pneumonia from the leucocyte count alone, except where there is a marked leucopenia; when studied in relation to the clinical picture, which is of the utmost importance, however, the leucocyte count becomes at once of great prognostic significance. Other things being equal, a high leucocytosis is a favorable sign. Thus in 16 fatal infections out of 40 cases studied, the average leucocytosis is 12,000, while in the remaining cases with recovery the average is 20,000.

Patients with excessively high leucocyte counts are apparently more prone to the development of empyema and other complications, although it is very difficult to say whether or not the hyperleucocytosis is not the result of an already infected pleura, etc., not demonstrable clinically.

In my previous paper, it is shown that there exists a very close relationship between leucocytosis and blood invasion of pneumococci in the rabbit. Believing that a knowledge of the exact number of pneumococci per c.c. of blood in pneumonia with a simultaneous leucocyte count would throw important light on the exact rôle the white corpuscle plays in this infection, I applied the plate method to the study of the blood in pneumonia, as I had done in the rabbit experiments. In this way I was able to show that the higher the leucocytosis the fewer the number of viable pneumococci in the circulating blood, and vice versa. Thus in seven patients with leucocytosis ranging from 35,000 to 43,000, the number of pneumococci which developed was very small indeed, varying from 0 to 25 per c.c. of blood. On the other hand, in cases of graver infection where there was a leucopenia, or only a moderate leucocytosis, the number ranged from 100 to 1,350 per c.c.

THE AGGLUTINATING AND ACID-PRODUCING PHENOMENA ASSOCIATED WITH THE GROWTH OF PNEUMOCOCCI IN PNEUMONIC SERUM.

In the agglutination tests the serum from 96 patients and 55 strains of pneumococci were used. Feeble agglutinating reactions were obtained as early as the second day of the disease, gradually growing more marked as crisis was reached and diminishing gradually thereafter. The highest dilution at which agglutination could be obtained was 1 in 50. Owing to the difficulty involved, the agglutination of the pneumococcus is of little practical value, being principally of scientific interest.

Normal and pneumonic serum in the test-tube have no bactericidal property toward the pneumococcus. It grows equally well in both, with this important difference, however: in normal serum the growth produces scarcely any appreciable precipitation, while in pneumonic serum a voluminous sediment appears, associated with the production of a well-marked acid reaction. By a series of experiments too long to detail here I have been able to prove that this sediment is a direct result of acids present.

This observation led at once to the following question: Does the pneumococcus, by its growth in the consolidated lung and in the blood of the patient during life, produce acids as it does in the test-tube, and if so, may not some of the symptoms of pneumonia be due to an acid intoxication?

In support of this view we now have the following evidence:

1. It has been shown in this investigation for the first time that the pneumococcus, when grown in pneumonic serum, produces a marked acid reaction.

2. A careful study of the literature seems to justify the statement that late in pneumonia after the powers of resistance fail, and after death, investigators have uniformly found a diminished alkalinity of the blood.

3. Smith and others "find a uniformly acid reaction of the lung tissue in patients dying from pneumonia."

4. Through the kindness of Dr. Frank Billings, I am able to report the following observation: In the treatment of 7 cases of pneumonia by the administration of large doses of alkalies, it was noted that the urine became strongly alkaline in reaction, and remained so until the time of crisis. At this time, however, when the products of resolution were being rapidly absorbed, the urine became acid in reaction for a period of time varying from twenty-four to forty-eight hours in 4 cases. In 3 cases the urine instead of becoming acid was neutral in reaction during the same period, but with an increased dosage of alkali, in all cases the urine subsequently became alkaline.

These findings point in the direction that pneumonia is an acid intoxication. Granting this, would not the administration of alkalies in large doses be indicated in the treatment of this disease? In fact, we may here have a rational explanation of the good results claimed by some investigators from the continuous administration of alkaline waters, etc., in the treatment of pneumonia. In the service of Dr. Billings at the Presbyterian Hospital, the alkaline treatment of pneumonia has been used clinically for nearly a year. From 1 to 3 drams of sodium bicarbonate, dissolved or suspended in at least 4 ounces of water, is given every two hours by mouth.

When patients are unable to swallow, larger doses are given by the rectum. No other treatment has been used except that, when necessary, free catharsis has been instituted and an attempt made to retain the heart's strength by venesection, and by the use of heart tonics when indicated; this, however, is usually unnecessary.

Special Article.

IMMUNITY.

CHAPTER VIII—Continued.

TOXINS AND ANTITOXINS.

Intracellular Toxins, or Endotoxins.

There is a large class of organisms which apparently produces no soluble toxin; such organisms, however, cause highly toxic diseases (e. g., typhoid, cholera, plague). The dead or ground-up bodies of such bacteria are very toxic; also when the germs disintegrate by a process of autolysis or self-digestion the culture medium becomes toxic because of the cell contents which are set free. Such organisms are said to contain intracellular toxins or endotoxins. In infections by them it has been supposed that toxic symptoms are produced when a sufficient number of the bacteria become dissolved through the action of the body fluids or some of the cells (phagocytes), the intracellular toxins being thus liberated. Nothing is known of the nature of such toxins. They certainly are very different from the soluble toxins of diphtheria and tetanus, since immunization with them has not as yet resulted in the production of efficient antitoxins. Buchner gave the name of "plasmin" to the cell juice which he was able to express from some micro-organisms.

The McFadyen Method.

McFadyen, by grinding large masses of typhoid bacilli which had been rendered brittle by the temperature of liquid air, obtains from this organism a toxic cell juice. The efficiency of the antitoxin which he is said to obtain by immunization with this material has not been demonstrated practically. It seems improbable that immunization with this "toxin" will yield a serum differing in properties from that obtained by immunization with the living organisms.

Accidental Toxic Substances.

Toxic substances obtained from bacteria by the action of strong chemicals and extracting fluids, of course, may not represent the primary and essential toxin of the organism, but perhaps some disintegration product which happens to be toxic. Here also the immunization experiment must be resorted to in order to determine the toxic or non-toxic nature of the substance.

Commercial Preparation of Antitoxins.

It is, of course, common knowledge that an antitoxin is the blood serum of an animal, after the latter has been rendered highly immune by repeated injections of the appropriate toxin. The horse is chosen for immunization because of its marked ability to yield antitoxins (diphtheria, tetanus), because of its size, withstanding much loss of blood, and because of the readiness with which it submits to manipulation.

Manufacturing plants which produce antitoxins and other antiserums on a large scale, have splendidly equipped stables, which are kept in the maximum hygienic condition, and from which rats in particular are rigorously excluded.[2] The horses are carefully groomed and fed and given such exercise as will keep them in a healthy condition.

The "Primary Immunity."

The toxins, in solution, are injected subcutaneously.[3] Grave and even fatal reactions may follow the first injections, if the toxin has been given in too large doses or in too concentrated solutions. This is especially true when injecting tetanus toxin. It is of great importance first to establish what the Germans call a "*Grundimmunität*," which means a primary immunity in the animal itself so that the immunization may then be pushed vigorously until the blood contains antitoxin in high concentration. For this purpose it has been found necessary to weaken the first toxins injected.

Attenuation of Toxins.

This may be done by heating the toxin solution to 65 to 70 C. for an hour; by adding to it from 0.05 to 0.4 per cent. of the trichlorid of iodin; or by adding a solution of potassium iodid in which iodin has been dissolved (Lugol's solution). High dilutions of the unaltered toxin may also be used. Gradually the virulence and amount of the toxin injected may be increased until finally the full virulent toxin is given in large doses. The increase in dosage must be very gradual. Eventually as much as a liter or more of diphtheria toxin is tolerated.

Following each injection, a reaction occurs. With diphtheria the local swelling may be great, and sloughing may occur. Following an injection of tetanus toxin, tetanic symptoms may appear. In either case, there is some loss of weight and often fever, and another injection must not be given until the original weight is regained and the general behavior of the animal indicates that its former healthy condition is reestablished. This interval is usually from eight to fourteen days.

From two to three (sometimes more) months of such treatment are usually sufficient for the production of diphtheria antitoxin in high concentration. At the end of this time blood is drawn from the jugular vein by means of a large trochar to which a rubber tube is attached. The tube leads to a tall glass cylinder holding from one to two liters, and into this the blood is allowed to flow. Six liters may be drawn safely from a horse of average size.[4] The most rigid asepsis is, of course, observed in taking the blood. The glass cylinders, appropriately covered to prevent contamination, are then set in a cool, dark place, and after the serum has separated from the clot samples are taken to be tested for their antitoxin value.

Preservatives of Serums.

The serum, in bulk or after being bottled for the trade, is preserved at a low temperature and in the dark, 0.5 per cent. of carbolic acid having been added to insure sterility. The addition of the acid may cause harmless cloudiness in the serum, but does not destroy the antitoxin.[5] Serums may be preserved perfectly in a dried or frozen state.

Many facts of scientific and practical importance have been brought to light through the immunization of animals on a large scale. It has been found, for example, that following each injection of toxin the amount of antitoxin in the blood suffers a reduction, and only equals or rises above the previous amount eight or ten days later. This decrease is explained by assuming that the toxin has to a certain extent united chemically with the circulating antitoxin. It indicates also the period at which the horse should be bled in order that the greatest amount of antitoxin may be obtained. It might even be dangerous to draw the blood before this time had elapsed since possibly some free toxin might still remain.

It is noteworthy that all horses are not equally good producers of antitoxin. One may yield a serum of three times the value of another, although the two have been treated identically and seem to be equally immune to the toxin.

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[2] The importance of this is very great, if, for example, horses are receiving injections of some virulent living micro organism (as the plague bacillus). In this case living micro-organisms reach the general circulation, and a rat having bitten the animal could well contract the plague and be an evident source of danger, not only to other animals, but to the community at large. Even fly-proof stalls are properly instituted in such cases.

[3] For the production of antivenin the snake venom is best injected intravenously.

[4] Some horses may be bled as many as forty times without suffering a conspicuous deterioration in health. In time, however, an animal becomes less valuable as an antitoxin producer.

[5] The Pasteur Institute, which prepares the serums used throughout France in addition to placing them on the general market, adds no preservatives to its serums, but sterilizes them after they are bottled by heating them for three successive days to a temperature of 40 C. for thirty minutes.

Another most interesting fact is that although the blood of an animal may be very rich in antitoxin, he still may have a disproportionate susceptibility to fresh injections of the toxin.

Many of these phenomena have not been explained satisfactorily.

The necessity of standardizing antitoxins so that dosage may be controlled accurately is self-evident. To meet this need the antitoxin unit familiar in practice was devised.

Standardization of Toxins and Antitoxins.

It was necessary to decide on some arbitrary unit of measure. The only means we have of estimating the value of an antitoxin is its ability to neutralize its corresponding toxin. Consequently, in order to standardize antitoxin it was first necessary to devise some unit of measure for the toxin itself. For this purpose Behring's toxin unit is generally used. A diphtheria toxin was designated normal when it was of such strength that 0.01 c.c. would kill a guinea-pig weighing 250 grams in four days. The value of any diphtheria toxin may be computed on this basis; it may, for example, be of two or of ten-fold strength, or, on the other hand, of one-half or one-fourth the normal strength.

ormal Toxin.

Measuring the antitoxin on the basis of the toxin unit it has been determined to consider an antitoxin of normal strength when 0.1 c.c. will protect a guinea-pig of 250 grams against 100 fatal doses of diphtheria toxin. This value is called the antitoxin unit. If the serum is only one-tenth normal then the antitoxin unit is contained in 1 c.c. of the serum instead of in 0.1 c.c. If it is of one hundred-fold value, the unit is represented in 0.001 c.c. of the serum.

Normal Antitoxin and the Antitoxin Unit.

In order to test various antitoxins uniformly it would be desirable to have a toxin which could be preserved a long time without losing any of its toxicity. The toxins, however, degenerate in time so that they are unreliable as standards. As will be shown, they lose their toxicity, but at the same time retain their binding power for antitoxin, so that tests made with such a degenerated toxin would not indicate the true neutralizing value of an antitoxin, and the results obtained with various antitoxins would have no comparative value.

Degeneration of Toxins.

Antitoxin, on the other hand, does not degenerate so readily, and when a serum is dried and kept in a bottle free from oxygen and from moisture it remains unaltered for an indefinite period. Consequently, it has been found that the most accurate and uniform results are obtainable when a dried antitoxin, of known strength, is used as the starting point for valuation tests. The actual strength of such a test serum is not of prime importance, but for certain practical reasons it is desirable to possess as a standard an antitoxic serum of high value. In any case, its value in terms of the conventional antitoxin unit must be known.[6]

Permanence of Antitoxins.

Dried Antitoxin.

The methods of testing diphtheria antitoxin which are employed in the Royal Prussian Institute for Experimental Therapy at Frankfurt, of which Ehrlich is the chief, may be taken as a model. The standard test serum employed by Ehrlich is a dried and powdered serum of such strength that 1 gram contains 1,700 immunity units; i. e., 1/1,700 of a c.c. will protect a guinea-pig of 250 grams weight against 100 fatal doses of a diphtheria toxin. The institute keeps in stock a large number of vials, each containing two grams of this dried serum. The air and moisture are exhausted from each vial and the latter is then sealed in the flame. Once in three months one of these vials is broken open carefully and the serum dissolved in 200 c.c. of a solution made up of equal parts of glycerin and 10 per cent. salt solution. This is a dilution of 100 times, hence the serum now has a 17-fold antitoxic value; i. e., 17 times stronger than the so-called normal antitoxin. For the succeeding three months this antitoxin solution is used in the comparative valuation of new antitoxins; the solution retains its strength unaltered for this period. 1 c.c. of the 17-fold antitoxin is, for the purpose of the test, considered as the unit.

Determination of the Value of Diphtheria Antitoxin.

The first step in the process is to standardize some diphtheria toxin which may be selected for the test. This is done by adding so much of the toxin to 1 c.c. of the test serum that an excess of one fatal dose of the toxin remains unbound by the antitoxin. The guinea-pig which receives this mixture dies in 4 days. The amount of toxin thus determined is used as the test dose of toxin in determining the value of the new antitoxin. If 1 c.c. of the new serum also neutralizes all but one fatal dose of toxin (the guinea-pig dying in four days) it also is of 17-fold strength. If it requires 4.25 c.c. it is then a serum of "normal" strength.

For therapeutic purposes, it is desirable to have a serum of high value in order to avoid giving too large quantities. Several diphtheria serums are on the market which have a value of 500 units to the cubic centimeter. It is difficult to immunize above this point.

Similar principles prevail in the standardization of tetanus antitoxin. Unfortunately in this country tetanus antitoxins are standardized with no degree of accuracy. With the exceptions of the commonwealths of New York and Massachusetts the manufacture and standardization of serums in the United States are in the hands of the manufacturers, who, of course, are private individuals or corporations. Although their work is usually well done, the advisability of some uniform oversight is very great.

Tetanus Antitoxin in the United States.

In addition to the need of knowing the exact antitoxic value of a serum, it should be determined positively that there is no contamination of the serum, and especially that no adventitious toxin is present. We can not readily forget the few instances in which fatal tetanus has resulted following the injection of diphtheria antitoxin.

Possibility of Dangerous Toxins in Serums.

(To be continued.)

Clinical Report.

PAPILLOMATOUS GROWTHS OCCURRING IN THE LARYNX OF THE CHILD.

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Because of the greater danger to life through suffocation and the greater difficulty encountered in the removal of these growths in the child than in the adult, this subject is especially deserving of consideration alike by the general practitioner and by the specialist.

Case 1.—T. E., aged 11, was sent to me Nov. 6, 1902, by Dr. W. F. Hall of McLeansboro.

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[6] In Germany the various serums are prepared by private individuals or corporations and manufacturers are required to send a sample of every lot of serum intended for the trade to the Frankfurt Institute that its exact value may be determined. Each bottle eventually receives a stamp signifying the value in antitoxin units of the contained serum. Moreover, samples of every lot of serum are retained in the institute, and from time to time these are tested; and when it is found that the samples have degenerated beyond a certain value the order is sent out to call in all serum belonging to the degenerated lot. As a further illustration, when a manufacturer thinks the serum of one of his horses has a high value he may draw a small amount of blood from the animal and send the serum to Frankfurt for a preliminary test. If the serum is sufficiently strong he may then bleed the horse freely; if it is weak he will be advised to continue the immuunization for a time.

History.—The patient had been singularly free from the diseases of childhood and has always had good health. For the past eighteen months he has been hoarse, and for twelve months his voice has been reduced to a whisper. For six months he frequently has been aroused from sleep by attacks of choking and inability "to get his breath," and now, even in his waking hours, his breathing is labored.

Examination.—The surface of the body was free from warts or new formations of any kind. The nasal passages and fauces were not diseased. Laryngoscopic examination disclosed a whitish cauliflower-like growth springing from the front of the larynx, obstructing the anterior half of the glottis and covering the right vocal cord.

Operation and Result.—November 7. After penciling the larynx three times with a 6 per cent. solution of cocain at intervals of three minutes, an intralaryngeal snare was passed, under the guidance of a laryngoscopic mirror, and a piece of the growth weighing 24 cg. was removed. November 8 and 9 additional portions of the growth, weighing 18 and 12 cg. respectively, were snared off. In all, some ten sittings were required for the entire removal of the tumor. At the time of his last visit to my office, December 27, the voice had been regained. Two years later his father wrote me that some hoarseness had developed, but not enough to bring the boy back for treatment.

Case 2.—B. T., aged 19 months, was brought to my office June 19, 1903, because she breathed with an effort and was voiceless.

Examination.—The nose and throat were free from obstruction. I was wholly unable to see the interior of the larynx with a laryngoscope because the child would not remain quiet. A diagnosis was made, however, of an intralaryngeal growth.

Subsequent History.—I did not see the child again till Dec. 6, 1904. The symptoms were very much worse and the child was unable to sleep for want of air, while at all times the breathing was so labored that at each inspiration the neck muscles stood out cord-like with retraction of the upper thorax and supraclavicular region. It was apparent that she might die from suffocation at any time.

Operations and Result.—The child was sent to St. Mary's Hospital. The resident physician, Dr. Stauffer, administered the anesthetic, and with the assistance of Dr. J. N. Jerome I performed an inferior tracheotomy and inserted a small tube into the trachea. The child slept well that night, and two days later chloroform was again administered, this time through the tracheal tube, and an effort made to see into the larynx from above. I obtained a very hasty glance and thought I could make out a laryngeal growth. Thyrotomy was performed, leaving, however, the upper part of the thyroid cartilage undivided. With retractors the halved cartilage was widely separated and after spraying the larynx with a 5 per cent. cocain solution and a 1-5,000 adrenalin solution, masses of a soft, mulberry-like growth of a pinkish white color were removed from the right cord by means of a Weber ear snare and a large-sized intratympanic ring knife. The thyroid cartilage was sutured with catgut and the skin wound closed with an interrupted black silk suture. The operation required one hour and a half and was attended with only very slight loss of blood. The tube was left in the trachea. No elevation of temperature followed this or the preceding tracheotomy, and the child continued to take nourishment and to gain in color and strength. During the next six days the tracheal tube was regularly removed for cleansing, and a number of attempts were made to dispense with the tube, but each time labored breathing followed and necessitated its reintroduction. Under chloroform anesthesia, additional attempts were made at laryngoscopic examination for the purpose of locating and removing the obstruction, but, because of an overhanging epiglottis and the rapid filling of the pharynx with mucus, we did not succeed. December 16, Dr. Jerome again assisting, chloroform was administered, the thyroid cartilage reopened, and after local cocain anesthesia, another mass of the growth was removed from the left vocal cord and the subglottic space immediately beneath it. The thyroid cartilage was again stitched with catgut and the skin was united with five interrupted silk sutures reinforced by strips of zinc adhesive plaster. The patient was permitted to come well from under the chloroform anesthesia, after which the tracheal tube was removed; easy breathing followed through the natural passages. By daily reapplication of strips of the adhesive plaster the inferior tracheotomy opening was held in coaptation and the child made an uninterrupted recovery.

December 27, the voice had returned so that she could be heard and understood all over the room. She was discharged from the hospital. A letter from her father, Feb. 7, 1905, stated that the skin opening had closed, that the child ate and slept well, talks all the time, and that they felt grateful for what we had done.

Remarks.—Almost nothing is known of the etiology of these growths. They occupy usually the anterior third of the true cords, or the mucous membrane between or near the insertion of the cords into the thyroid cartilage. This would seem to indicate that the development of these growths is connected in some unexplained way with the function of this region. Laryngeal catarrh, excessive use and straining of the voice, syphilis and tuberculosis have been assigned as causative factors in this disease, but proof of this is lacking and we must rest content with the theory that wart-like growths are the local manifestation of a constitutional diathesis. I believe that the growth in Case 2 was congenital. The diagnosis of laryngeal growth is simple enough when a thorough laryngoscopic examination is possible; otherwise we must rely on absent or altered voice, difficulty in breathing, especially coming on during sleep when the patient assumes a position favorable for the growth to obstruct or to cover up the glottis. A small tumor, springing from the free edge of a vocal cord, produces aphonia earlier than a much larger growth in another portion of the larynx. The experienced ear will be materially assisted in making a diagnosis by the peculiar character of the voice and by the respiratory stenosis. Prognosis regarding life and recovery of the voice is largely influenced by the line of treatment adopted. When the patient is old enough to co-operate with the physician, so that endolaryngeal procedures for the removal of the growth are possible, life nearly always can be preserved, and the voice restored. Recurrence is to be anticipated whatever the operative measure in from 25 to 50 per cent. of the cases. When the age of the patient is such that an endolaryngeal operation can not be successfully performed there remains nothing but external laryngotomy, and this preferably after a preliminary tracheotomy. If the symptoms do not indicate danger to life, external operative measures are to be deferred, with the hope that in time endolaryngeal interference will be possible.

My experience with thyrotomy is entirely in accord with Gottstein, who says that this operation in the young child is very tedious and difficult of performance. The small size of the larynx precludes a good view of its interior and most of the instrumental manipulation in removing the growth is done in the dark, with much reliance on touch. The mortality among children, after laryngotomy, even in the hands of McKenzie and of other experienced laryngologists, is a high one when done for papilloma.

To Regulate Expert Testimony.—A bill has been introduced into the Massachusetts legislature for the regulation of expert testimony on the ground of expense to the state, of biased testimony, and of the unnecessary number of experts employed. The bill provides that expert witnesses shall not be paid amounts in excess of the ordinary witness fee unless the court awards a larger sum. The number of expert witnesses is also limited, except in special cases. Sporadic attempts have been made from time to time to improve the character of expert testimony, but hitherto without success. We are inclined, in general, to think that justice would be better subserved if the court had more choice in the selection of experts.—*Boston Medical and Surgical Journal.*

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THE INTERNAL SECRETION OF THE TESTICLE.

Although the kidney and liver unquestionably secrete important products into the blood, we have no definite anatomic provision for separate internal and external secretion, as is the case with the pancreas. Here we find that the cells which produce the chief internal secretion of the organ are anatomically distinct from those secreting the digestive juice, being collected in groups between the tubules to form the islands of Langerhans. It is not so generally understood that the testicle is in this respect quite similar to the pancreas. The tubular structures of the testicle are obviously concerned in the manufacture of the spermatozoa, the external secretion. Between the tubules, in addition to the connective tissue framework and vessels, are small collections of cells whose comparatively abundant, finely granular cytoplasm distinguishes them from the stroma cells, and at the same time suggests the possibility of secretory function. These cells are not as definitely grouped as are the cells of the islands of Langerhans, and in the human testicle do not form so conspicuous a feature of the histologic picture, hence relatively little attention is generally given them. That they are extremely important structures is, however, very probable.

There are three evident functions of the testicle: First, the production of a substance or stimulus that influences certain phases of development, particularly those related to sexual characteristics; that the testicles alone produce this stimulant, if we may call it such provisionally, is amply proved by the results of castration in youth. Second, the manufacture of spermatozoa. Third, the production of some substance or stimulus essential to the production of the psychical manifestations of sexual activity. The first and third, although perhaps closely related, must be separated, as one is essentially developmental, whereas after development is complete anatomically, the other may be lost. By analogy with the pancreas, the possibility that it may be these "interstitial cells," or "interstitial glands," as they are variously called, is quite apparent, and Bouin and Ancel[1] have recently published a number of articles bearing on this problem. Their conclusion is that to the interstitial cells of the testicle are to be attributed all the effects on the body as a whole, that we ordinarily attribute to the testicle. The function of the cells of the seminiferous tubules seems to be limited to the production of the spermatozoa and the fluid in which they lie.

An important source of evidence was found in the testicles of cryptorchids, both of man and the lower animals, particularly swine. In such undescended testicles the usual finding is that the seminal cells are absent, whereas the interstitial gland cells remain, together with certain syncytial cells that lie at the base of the seminal cells. Such individuals develop normally, and are possessed of all the attributes of virility, except the possibility of procreation; indeed, it is stated by veterinarians that cryptorchid stallions seem to possess exceptionally violent sexual inclinations in some instances. On the other hand, if these undescended testicles are removed, sexual capacity and inclination disappear exactly as when normal testicles are removed. Evidently the functions of spermatogenesis and internal secretion are quite independent, as clinical evidence demonstrates frequently enough. In the case of pathologic occlusion of the vas in man, or of experimental occlusion in animals, we find conditions quite comparable to those of cryptorchidism, namely, disappearance of the seminal cells with retention of the interstitial glands. This last is similar to the usual result of occlusion of the pancreatic duct—atrophy of the tubular structures and preservation of the islands of Langerhans, the latter preventing the occurrence of diabetes. Occasionally, however, after occlusion of the pancreatic duct, the islands of Langerhans are involved in the resulting connective tissue overgrowth, diabetes resulting. So, too, with the testicle, the interstitial cells may be destroyed by inflammatory processes, or after experimental vasectomy if the nerves are injured these cells atrophy; in either case the sexual capacity is lost.

If in an animal with one undescended testicle the descended one is removed, as frequently happens in castrating swine, the development of the sexual characteristics, both anatomic and psychical, goes on as though no castration had been attempted. In such animals the undescended testicle was found to have undergone a compensatory hypertrophy of the cells of the interstitial glands, strongly supporting the idea that these cells also are essential for the development of the sexual characteristics, as well as for their maintenance after puberty. Some cryptorchids, however, do not develop, and in this class it was always found that the interstitial gland cells were scanty and of an atrophic type. In old age these cells were found to be much atrophied and pigmented. Embryologically, the interstitial glands appear very early, before the seminal cells, and are the first characteristic evidence of sex to be developed. The authors quoted are inclined to the belief that at this early stage these glands may determine by their secretion the development of sex, but the evidence in support of this theory is by no means convincing.

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[1] Jour. de Physiol. et. Path. gén., 1904, p. 1012.

REPORT OF TYPHOID FEVER BOARD—WAR WITH SPAIN.

A valuable addition to epidemiologic literature has just been made in the publication by the Surgeon General of the Army, under a special appropriation by Congress, of the full text of a report on the Origin and Spread of Typhoid Fever in U. S. Military Camps During the Spanish War of 1898. This report was the work of a board of three men whose attainments were commensurate with the magnitude of the task undertaken by them. Of these, by a singular fatality. two have since died. Walter Reed, major and surgeon, U. S. Army, has won the fame and the gratitude of humanity by his work on yellow fever. He died Nov. 23, 1902. Dr. Edward O. Shakespeare of Philadelphia, major and brigade surgeon, U. S. Vols., is well known to the scientific world by his contributions to medical science and especially by his report to the U. S. Government on epidemic cholera and his remarkable study of the typhoid epidemic at Plymouth, Pa. He died June 1, 1900. before the completion of the abstract of this report, which was published in that year. The surviving member of the board. Victor C. Vaughan, major and brigade surgeon, U. S. Vols., the distinguished teacher of hygiene and physiologic chemistry at the University of Michigan, has been charged with the publication of this report, a work which he has performed with characteristic zeal, thoroughness and discrimination. The first volume, of 712 folio pages, contains in minute detail the sanitary histories of the individual companies of 106 volunteer regiments. besides data relating to the occurrence of typhoid and malarial fevers in a number of regular regiments and detached organizations. Numerous diagrams showing the occurrence of typhoid fever by companies and tents are also included. Dr. Vaughan has added to this volume three valuable appendices showing the results of 700 analyses of drinking water. a report on the chemical disinfection of drinking water and a paper on typhoid bacilluria, these studies having been made at the hygienic laboratory of Michigan University. The second volume contains maps of the camps at Chicamauga Park. Ga.. Camp Alger, Va., Camp Meade. Pa., and Camp Cuba Libre. Fla., together with 9 meteorologic charts and 84 morbidity charts of regiments. None but epidemiologists will have time to read the vast mass of observed facts and of medical testimony collected with infinite patience and industry by the board. but to these it will constitute an inexhaustible storehouse of information.

To the general practitioner and to military surgeons the general statements and conclusions of the board published in Chapter XIV will be most interesting and valuable. Space permits of the quotation of only a few of the most striking of these, as follows:

"More than 90 per cent. of the volunteer regiments developed typhoid fever within eight weeks after going into camp." "It became epidemic both in the small camps of not more than one regiment and in the larger ones, consisting of one or more corps, and in camps located in the northern as well as in the southern states."

"Typhoid fever is more likely to become epidemic in camps than in civil life because of the greater difficulty of disposing of the excretions from the human body."

"Infected water was not an important factor in the spread of typhoid fever in the national encampments in 1898." "Flies undoubtedly served as carriers of infection." "It is more than likely that men transported infected material on their persons or in their clothing and thus disseminated the disease."

"Typhoid fever in regiments was characterized by a series of company epidemics." "In addition to the recognized cases of typhoid fever there were many short or abortive attacks of this disease which were generally diagnosed as some form of malarial fever."

"The belief that errors in diet with consequent gastric and intestinal catarrh induce typhoid fever, or that simple gastrointestinal disturbances predispose to it is not supported by these investigations."

"The percentage of deaths among 20,738 cases in 92 regiments was 7.61."

Most suggestive to military sanitarians is the statement in Appendix III that typhoid organisms are found in the urine of about one-fourth of all cases, and that. because of the frequency with which it is voided, its comparative inoffensiveness, its easy dissemination and the relatively great number of organisms present, infected urine is the most dangerous excretion of the typhoid patient. This work makes it evident that in camp life typhoid fever must be regarded and treated as a contagious as well as an infectious disease. One rises from an examination of this work with a sense of amazement at the industry, patience and skill with which so vast an aggregation of facts was amassed, collated and digested. It is to be regretted that the work of completing this report for publication was interrupted and that it was not given to the medical profession five years ago.

One practical result of the observations of this board was the devising by them of a system for the disposal of excreta in fixed camps by means of a trough filled with milk of lime and emptied by an odorless excavator. This has been officially adopted for army use by the War Department and is, as was recently stated by a prominent English military surgeon, the best system yet devised for camps.

TRUTH AND POETRY CONCERNING URIC ACID.

X.

Having considered the general physical and chemical properties of uric acid. we are now prepared to review the opinions bearing on the form in which uric acid and the urates exist in the urine on the one hand, and in the tissue juices and the blood on the other. More than ordinary interest attaches to the conditions through which it is held in solution in the body, and a great deal of work has been done to determine the form in which it is precipitated in gouty deposits and in urinary sediments and concrements. Much study has been devoted to the factors which determine such precipitation and sedimentation.

In fresh, normal urine, the uric acid and urates are always in solution, but on standing a sediment tends to form. This may be either a red, sand-like crystalline powder, which collects on the bottom or on the sides of the container, or it may take the form of the well-known reddish-gray brick-dust deposit, the so-called *sedimentum latericium,* which makes the urine uniformly turbid but easily clears up on heating. If the brick-dust deposit be permitted to stand for some time, red crystals gradually separate out. the latter do not redissolve on warming, and, microscopically. they are seen to be crystals of free uric acid. The brick-dust deposit itself is now known to consist of amorphous mononatrium urate, whereas the crystalline deposit on the bottom and sides of the container may consist of crystallized mononatrium urate alone or of the same substance mixed with crystals of uric acid.

It has been shown that the formation of the sediment, though partly due to cooling, is generally caused by a chemical transformation in the urine; as the precipitate falls out the acidity of the urine is diminished.[1] This chemical change consists in a reaction between the mononatrium urate and the mononatrium phosphate present in the urine; as a result, neutral phosphate of soda and free uric acid are formed. The whole process can be imitated artificially, as Camerer has shown. This investigator mixed a saturated solution of mononatrium urate, which is alkaline to litmus, with a solution of mononatrium phosphate, which is acid to litmus; both fluids were kept at a temperature of 37° C. The reaction of the mixture was acid while it remained warm, but on cooling it turned alkaline and crystals of uric acid fell out of the solution. On warming the whole mass again, the uric acid redissolved and the alkalinity yielded to acidity.

The literature contains a vast number of researches dealing with the conditions of solubility of uric acid in the urine. Since uric acid is more soluble in an aqueous solution of urea than it is in water, Rüdel[2] maintained that in all probability a urate of urea is present in the urine. Roberts[3] believed that the uric acid excreted in the urine *comes out of the kidneys* as heminatrium urate (his quadriurate) and that this decomposes on standing into mononatrium urate and free uric acid. Pfeiffer[4] advanced the hypothesis that a double salt is formed between sodium urate and sodium phosphate and that the solubility in the urine is thus accounted for. These views of Rüdel, Roberts and Pfeiffer have not, however, stood the test of control experiments.

By far the best researches that deal with this phase of the subject are those of Zerner[5] and Ritter.[6] Zerner showed conclusively the dependence of the solubility of the uric acid and urates in the urine on their relations to the neutral phosphates present. It was he who first took up the systematic study of the influence of the phosphates on the solution of uric acid. All who have worked at the subject since have confirmed his main point, namely, that dinatrium phosphate is the most important solvent of the uric acid in the urine and possesses the power of hindering the decomposition of urates into free uric acid. While the natural tendency of mononatrium phosphate in the urine is to act by decomposing urates into uric acid, this salt is ineffective as long as a sufficient amount of dinatrium phosphate is present along with it. Ritter's work has confirmed that of Zerner and has done much to clear away all the other vague or conflicting theories. Our knowledge of the conditions of solubility of uric acid and urates in the urine may be considered as tolerably satisfactory.

The matter of our knowledge regarding the conditions of solubility in the blood and the tissue juices is quite different. The old idea of v. Wittich[7] that uric acid exists in the blood as dinatrium urate and that it is deposited in the tissues in gout on account of a decomposition in the latter due to their high holding in carbonic acid, the dinatrium urate being transformed into the much less soluble mononatrium urate, was accepted by Pawlinoff[8] (1875) and by other investigators for a long time after, but is now regarded as highly improbable. Nor have the views of Roberts, that the uric acid in the blood is present as heminatrium urate, or of Pfeiffer, that it exists as a double salt formed by the union of mononatrium urate with dinatrium phosphate, any more in their favor than have the similar views regarding the conditions of solubility of the uric acid in the urine.

A gleam of new light came with the suggestion of Minkowski[9] that possibly uric acid circulates in the blood. not in the form of a salt, but in loose union with some organic atom complex. He has shown experimentally that if an alkaline solution of chemically pure nucleinic acid be mixed with a solution of urate of soda, the addition of acetic acid no longer causes a precipitate of uric acid, nor can the uric acid be precipitated with the ordinary silver-magnesia mixture. Goto[10] in 1900 came to similar conclusions independently, and showed that thymin acid forms compounds with uric acid which behave entirely differently from ordinary uric acid or urates and which escape detection by our ordinary methods of qualitative or quantitative estimation. It is not impossible, therefore, that the uric acid in the blood may be combined in some such way. If so, far greater amounts of it may be present in the blood and body juices than we have hitherto thought probable, for if it exists under some such conditions as those mentioned, it must have escaped detection.

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[1] Voit, C., u. Hofmann: Ueber das Zustandekommen der Harnsäuresedimente, Sitzber. d. k. bayer. Akad. d. Wissensch., i, 1867, p. 279.

[2] Rüdel, G.: Zur Kenntniss der Lösungsbedingungen der Harnsäure im Harne, Arch. f. exper. Pathol. u. Pharmakol., xxx, 1892, p. 469.

[3] Roberts, W.: On the Chemistry and Therapeutics of Uric Acid, Gravel and Gout, *Croonian* Lectures, London, 1892.

[4] Pfeiffer, E.: Ueber Harnsäureverbindungen beim Menschen, Berl. klin. Wochft., xxxi, 1894, p. 913.

[5] Zerner, T. J.: Ueber die chemischen Bedingungen für die Bildung von Harnsäuresedimenten, Wiener klin. Wochft., vi, 1893, p. 272.

[6] Ritter, A.: Ueber die Bedingungen für die Entstehung der Harnsäuresedimente; ein Beitrag zur Theorie der Gicht., Ztschr. f. Biol., xxxv, 1897, p. 155.

[7] v. Wittich: Ueber Harnsekretion und Albuminurie, Virch. Arch., x, 1856, p. 325.

[8] Pawlinoff: Die Bildungsstätte der Harnsäure im Organismus, Virch. Arch., lxii, 1875, p. 57.

[9] Minkowski, O.: Ernährungstherapie bei harnsäurer *Diathese. Gicht, Arthritis* deformans, Oxalurie, und Phosphaturie, Leyden's Handbuch der Ernährungstherapie, ii, p. 499.

THE ABUSE OF PROPRIETARY MEDICINES.

Two weeks ago we pointed out that the principal functions of the Council on Pharmacy and Chemistry will consist in passing on the ethical merits of proprietary remedies from the pharmaceutical and chemical point of view. The next step lies with the medical profession. It is the duty of every physician to realize this and to assist in reducing the indiscriminate employment of products that are at all secret in their composition; for their present enormous use is a reflection on the acumen and the common sense of the profession as a whole. The reason there is so much of this prescribing of proprietary remedies, the vast majority of which are secret, is not hard to discover.

First, there is an ever-increasing tendency to abandon the old and tried preparations. There seems to be an inherent tendency in all things to assume that the new is necessarily superior to the old. This assumption is not logical, especially when it is remembered that we are now considering proprietary preparations. There can be no question that the new, if promising, deserves an honest investigation, but what proportion of proprietary remedies have undergone such an investigation? The difficulty is that therapeutic tests are difficult and indecisive. We are rarely certain of what the outcome would have been had the drug been omitted; and it is rare that the drug to be investigated is the only item in treatment. To some extent, errors may be counterbalanced in a large number of observations, especially when made by careful, unprejudiced and independent observers, and an acute and practical observer may be justified in drawing conclusions from a limited number of observations, with a fair degree of probability. But we should be suspicious of the "tests" made by, and the endorsements of, those who have never been heard of in any other connection.

Again, no one advertises drugs that are recognized as official and in which no individual or firm has any direct financial interest. On the other hand, the manufacturers of proprietary preparations employ the best advertising talent that can be obtained. The burden of the blame is not on the advertisers, however, or on the publications which accept their advertisements, but on the physicians, who place absolute dependence on the say-so of some one who has something to sell. The manufacturer does his best to convince the physician that it is to his (the physician's) interest to use his products, and so long as he does this within the bounds of honesty and truthfulness he can not be criticised.

Many, however, prescribe these convenient mixtures because they lack confidence in their therapeutic knowledge, or in their ability to build the desired ingredients into a prescription *secundum artem.* It seems to us that this increasing ignorance of therapeutics and of prescription writing should bear a large part of the blame for the abuses of which we complain. It is pretty near the root of the whole matter; and in its eradication lies a cure. One of the causes of this ignorance is the fact that therapeutics and prescription writing are neglected in our medical colleges, and some of the highest grade colleges are the most to blame in this particular. In fact, we do not hesitate to say that if the medical colleges would do their duty in this regard, and would teach their students not only what to do but what not to do, there would soon be an end to secret nostrum prescribing.

The remedy for the evil which we are considering, as for all other evils from which we as a profession are suffering, lies with us. If we want the evil continued, it certainly will continue, and if we stand ready to prescribe indiscriminately all preparations offered, we can not blame those who so willingly supply us with them.

HAWAIIAN FEVER.

Some years ago, it is said, a Japanese physician practicing in Honolulu issued a death certificate giving "Hawaiian fever" as the cause of death, and insisted that, while the disease had been confounded with malaria, it was something new to him, and not, so far as he knew, differentiated in the literature of medicine. The certificate was accepted, and since then the term Hawaiian fever has been more or less employed. At a recent meeting of the Hawaiian Medical Association, Dr. A. N. Sinclair read a paper on the subject, claiming that the symptoms and the course of the disease were different from those of malaria. He said that he had been unable to find the plasmodium of malaria in any case excepting one imported case of malaria, and, furthermore, the essential condition of the disease, the anopheles, did not exist in the islands. If we have a new species of disease peculiar to the Hawaiian Islands, and which is sometimes *fatal,* it is a matter worthy of investigation. Any new addition to the list of tropical diseases in our new possessions is an interesting if not altogether a welcome fact.

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[10] Goto, M.: Ueber die Lösung der Harnsäure durch Nukleinsäure und Thyminsäure, Ztschr. f. physiol. Chem., xxx, 1900, p. 473.

THE GRIP OF QUACKERY ON THE NEWSPAPERS.

When financial reasons are the basis of action in spite of the right or the wrong of the matter, it is customary for those involved to make some excuse to veil the motives, and not to speak so plainly as to reveal the real animus. The following quotation from a telegram to the Chicago *Tribune* is certainly frank: "The press association resolved to take action to kill bills in the legislature [Wis.] that aim to give medical examiners the power to revoke the licenses of physicians who advertise and to require patent medicine companies to publish their formulæ on the bottles. The latter bill, it is asserted, will deprive publishers of the state of $500,000. Other bills, limiting county printing, cost, etc., will be fought." We are glad that the *Tribune* is not so controlled by commercial interests as to prevent its stating news in plain terms.

THE MISSOURI DECISION AGAINST THE OSTEOPATHS.

We publish this week the Missouri decision against osteopathy. As the decision covers many points of direct interest to physicians, we believe it is unnecessary to apologize for publishing the entire text. It is full of information, not only as it relates to the osteopaths, but as it affects physicians in other ways. Especially is the subject of the right of a witness of one school of medicine to give evidence in a case against another school covered as it has never been covered before, so far as we know. The anomalous position that osteopathy occupies is well shown up in the decision. The osteopaths are practitioners of medicine, and they are not; it all depends on their point of view. The decision, further, is of value because it contains references to decisions that affect not only the various points brought up in this particular case, but those that bear on evidence in malpractice suits, etc.

CLASS PUBLICATIONS.

The newspaper and periodical directories contain a list of what are called class publications; that is, periodicals that are published in the interest of a certain class. These journals are supposed to stand for, to represent, a particular trade, calling or profession. The functions of such journals are to represent and to uphold the interests of the classes for which they stand and to publish such matter as is of direct interest to their readers. Medical journals are class publications and as such are supposed to represent the interests of medical men. It is presumed that their reading pages will contain articles that will be helpful to physicians; that will enlighten them on subjects in which they are interested, and that will keep them informed on all matters that they should know. Their reading pages are not supposed to be bartered to those belonging to another class or to represent the interests of another class as against those they are supposed to represent. Evidently, some journals that are listed under "medical" are in the wrong list; probably the names of such journals misled those who compiled the list, and so they were wrongly classified.

A NEW WESTERN PERIL.

Some years ago we called attention to the fact that, according to certain statistics, Colorado was losing its male faster than its female population, and bid fair, if the conditions continued, to become in time an Adamless Eden. We have not heard from the subject further, and presume that the threatened outcome is still a long way off. Now, however, comes another report, this time from Carson City, Nevada, which points the same way, only that it indicates not an increased mortality, but a striking deficiency in the birth rate of males. It is said that in that community in the year 1904, out of the total of fifty-seven births, only one was a boy, and that that baby arrived just in time to prevent the record from being totally a female one. There is something wrong in the mountain regions apparently, if we are to accept such data as these. We know that statistics are sometimes included as an aggravated type in the classification of lies, but this Carson City record is alleged as merely an unmanipulated fact. What it is in that region that should produce such a result it is hard to say, unless it is some relic of the influence of the teachings of Brigham Young. If that sort of thing is to be continued, polygamy or emigration will be almost the only resources of the Nevada spinsters. Perhaps we shall hear from Utah next.

THE REAL PRESCRIBER.

The present status of proprietary medicines, their widespread use and their liberal endorsement by so many medical practitioners is a matter that is so evidently inconsistent with all rational ideas of science and progress that, were it not for the ultimate object. the preservation of human life, the whole subject would, as it surely will in the future, appear most ludicrous and absurd. Few of us, probably, have considered how unreasonable and irrational it would be for a surgeon to follow the advice and direction of an instrument maker, as to when and how one should operate on a given patient, or how preposterous it would be for a lens grinder, or even the glass manufacturer, to dictate to an efficient oculist how to modify his prescriptions for lenses so that a single prescription would fit all eyes. Nevertheless, many physicians will listen willingly to the exaggerated and unwarranted claims regarding a secret nostrum, despite the fact that the people who are making and exploiting the preparations may be ignorant of even the fundamental principles on which the practice of medicine is based. Is it, for instance, not unreasonable to suppose that individuals who are totally devoid of a practical knowledge of pathology, physiology or even anatomy should, by some fortuitous and unknown chain of circumstances, be placed in a position to dictate to medical men how they should treat their patients, regardless of individual idiosyncrasies or possible complications?

IGNORANCE ON YELLOW FEVER.

The irresponsible writing that is being done by certain wiseacres of the lay press who fancy that they know all about not only politics but history and histology, art and astronomy, money and metaphysics, to say nothing of philosophy and physic, is exemplified by a recent article by Richard Weightman for a syndicate of papers with which he is identified. In the course of one rather remarkable ebullition, in which Mr. Weightman assumes to set at rest once and for all every heretofore moot question connected with the pathology, symptoms and treatment of yellow fever, he says: "You will observe, however, that every recent report from Panama makes haste to explain how, as soon as yellow fever broke out there, the doctors at once got busy with the old expedients of sanitation—the dustpan, the shovel, the garbage cart, the carbolic-acid sprinkler and all the rest of it. You don't hear a word about mosquito nets, etc., after yellow jack bulges in on the stage. Science immediately reverts to the ancient remedies, specifics, antidotes, and so on." Of course, all this is arrant nonsense and ought to be known as such by every man who assumes to write for public enlightenment. In the light of such reports as that of Dr. Reed, in our last week's issue—not the garbled version of it that appeared in the daily press—and in the light of every other authentic report that comes from Panama, the declaration of Mr. Weightman, just quoted, can be set down as nothing but a deliberate misrepresentation perpetrated for the purpose of misrepresentation. He ought to know that the successful sanitation of Havana was accomplished and is maintained by the practical application of the mosquito theory, just as he should know that every bit of effective sanitation that was adopted before the advent of the mosquito theory was effective because of its empirical application of the facts which have since found their place in that theory. Mr. Weightman in another of his letters sneered at the work that is being done by the Carnegie Institute, and referred sarcastically to practically everything connected with it; it was full of misrepresentations and insinuations. Evidently he has little respect for science, sensation being more to his liking. It might be well for his employers to insist that he tell the truth in his correspondence. In this case the newspapers for which he writes would be more respected.

CONGRESS AND THE ARMY MEDICAL BILL.

The bill to increase the efficiency of the Medical Department of the Army is another that failed to become a law at the session of Congress just closed. The bill, the passage of which the American Medical Association, through its committee on National Legislation, earnestly urged, passed the Senate and was favorably reported (in a somewhat mutilated condition) by the Military Committee of the House. In view of the President's message urging its passage and its strong endorsement by the War Department, it would undoubtedly have become a law if it had been permitted to come to a vote in the House. At the final stage, however, a fatal obstacle was encountered in the refusal of the speaker, Mr. Cannon, to permit the measure to come to a vote. In this refusal he persisted in spite of the personal solicitation of the Secretary of War and the formal declaration of the President that "if the Medical Department is left as it is, no amount of wisdom or efficiency in its administration will prevent a complete breakdown in the event of a serious war." The speaker's obstructive position is understood to be due not to any disapproval of the provisions of the bill, but to be simply due to his determination to head off new legislation during this session. Thus the responsibility rests with Mr. Cannon alone of continuing for another year a condition which is full of possibilities of useless waste of life and loss of military efficiency, which is discreditable to the nation. It is the more serious because Congress can not by the passage of any law at once remedy past neglects. Efficiency in the Medical Department, as in other parts of the Army, is a matter of training and military experience, and requires both time and hard work. It can not be improvised. The lesson which we can learn from brave little Japan is no secret of rice diets or of new sanitary devices, but of careful, patient preparation for war, both as regards personnel and material, of working out every detail, of leaving nothing to chance. It is the lesson inculcated by George Washington—the lesson which we have never learned—"In time of peace prepare for war." As a nation we prefer, certainly in medico-military matters, improvisation to preparation, chance to prevision, and in the ever-increasingly complex and technical art of war, the tyro to the expert. And so Mr. Cannon is only exemplifying a national characteristic when he turns a deaf ear to the President, to the War Department and to the medical profession, and lightly puts aside for another year this important contribution to the efficiency of our Army.

THE VARIED FUNCTIONS POSSIBLE IN THE COUNTY MEDICAL SOCIETY.

The tendency of the age seems well-nigh worldwide for isolated groups of the community—trades, professions, etc.—to adopt for the common good of their membership certain methods of communal activity. The unanimity with which the medical profession seized the opportunity to reorganize on a basis effective for the general good of physicians and the commonwealth is an illustration in point. It is fortunate that the adopted mode of organization affords through the autonomy of the county society so full opportunity for varied experiments in medical socialism. Some societies are doing little or nothing in this direction; others are taking very advanced ground and are working out some theoretical and practical problems of exceedingly great interest. Recently in these columns we drew attention to the Cleveland Academy of Medicine and its very effective work along certain lines. We have since received the announcement of the Defense League of the Wayne County Medical Society, created as a branch to supply needed defense for the Detroit profession against unjust suits for damages and blackmail. The plan seems an excellent one and ought to work well save for one thing. An annual fee is required, separate from the society dues, and members of the society who do not wish to join the league need not do so. This plan, in some places, might present a membership large enough to secure ample funds for convenient operation. Aside from this reason, however, the plan is a departure from the organization system and the coöperation feature is lacking. What is for the good of one is for the good of all and all should contribute alike, for the reputation of the work of the league will itself ward off suits. The Chicago Medical Society has for some time conducted a medicolegal department, which is found of great value in defending members in such suits. And, by the way, no organization has been more enterprising in the various activities possible to the county medical society than has the Chicago Medical Society. Its latest proposal—a "business bureau"—is particularly noteworthy, though not yet adopted. The objects of such a bureau would be the collection of accounts for members, the assumption of complete care of the books of a disabled, absent, or deceased member, and in general the execution of various matters of business for the members and for the society as a whole. So far as known, such an experiment has not been put to the test, and all workers in organization will be interested in the outcome if the plan is adopted.

Medical News.

CALIFORNIA.

State Sanatorium.—A bill has passed the legislature, carrying an appropriation of $150,000, for the erection of a state sanatorium for the treatment of poor patients suffering from tuberculosis.

Governor Favors Vaccination.—Governor Pardee, on March 8, sent a message to the senate vetoing the bill to prevent vaccination being made a compulsory condition for admission to the public schools. The senate refused to pass the bill over the veto by a vote of 23 to 3.

ILLINOIS.

Bequest.—By the will of the late Daniel Kerns, Quincy, St. Mary's Hospital in that city receives a bequest of $1,000.

Diphtheria Prevails.—Libertyville schools have been closed because of the prevalence of diphtheria. At least 10 cases have been reported and two deaths have occurred.

Eye and Ear Society.—At a meeting held in Danville, March 7, the Eastern Illinois Ophthalmological and Otological Society was organized with the following officers: President, Dr. Cassius M. Craig, Champaign; secretary, Dr. Charles P. Hoffman, Danville, and committee on fee-bill, Drs. Irvin E. Huston and Elbert E. Clark, Danville.

Personal.—Dr. James A. Egan, secretary of the State Board of Health, has been awarded a gold medal for his work in connection with the exhibit of the board at the Louisiana Purchase Exposition.——Dr. William R. Patton, local surgeon of the Clover Leaf System at Charleston, has resigned.——Dr. William C. Dixon, Canton, has been reappointed physician of Fulton County.——Dr. George G. Craig, Rock Island, has announced his candidacy for mayor of the city.

Legislative Progress.—Senate Bill No. 169, which provides for the appointment of an osteopath on the State Board of Health, and decreases the membership of the regular school, and Senate Bill No. 292 (committee substitute for Senate Bill No. 171), which attempts to regulate medical and osteopathic practice and stipulates that physician's certificates shall be issued to certain osteopaths without examination, are ordered for second reading. Both bills are being opposed by the State Board of Health.——The Epileptic Colony bills (House bills Nos. 211 and 353 and Senate Bill No. 268) were considered by the appropriate committees last week. The result is conjectural. The bill to regulate the practice of "Optometry," facetiously referred to by the legislators as the "window-glass bill," seems to be defunct.

Chicago.

Smallpox Rampant.—During the week ended March 11, 31 cases of smallpox were reported to the Department of Health, and 9 patients died at the Isolation Hospital.

The Week's Deaths.—Of the 627 deaths reported during the week ended March 11, 138 were due to pneumonia; 82 to tuberculosis; 45 to heart diseases; 38 to nephritis; 33 to violence, and 30 to bronchitis. The mortality rate was 16.41 per 1,000 per annum, the same as for the previous week.

February Mortality.—The deaths from all causes in February were 2,421, 66 less than in January, and 284 less than in February of 1904. *This is equivalent* to an annual death rate of 15.86 per 1,000. The death causes are headed by pneumonia, with 522 deaths; consumption caused 285 deaths, heart diseases 158, bronchitis 154, nephritis 133, violence 114, nervous diseases 106, and influenza 41. Diphtheria caused 32 deaths, whooping cough 30, smallpox 11, measles 15, and scarlet fever 7.

Measles Not Mild.—In the first 70 days of the year 43 deaths from measles were reported. During the whole of 1904 only 47 such deaths were reported. These figures, says the Department of Health, acquire a very serious importance when it is considered that only a relatively small proportion of the deaths from measles are reported as such—the immediate cause of death, such as bronchopneumonia, capillary bronchitis, lobar pneumonia or similar grave affections developed during an attack of measles, being given as the actual cause.

INDIAN TERRITORY.

Personal.—Dr. T. C. Brannum, Pauls Valley, has been appointed secretary of medical examiners for the southern district, vice Dr. E. E. Chivvers, Mannsville, resigned.

"Quaker Doctor" Fined.—On Dec. 21, 1904, E. F. Baldwin, a self-styled "Quaker Doctor," was tried at Ryan on the charge of practicing medicine without a license, was convicted and sentenced to pay a fine of $150 and costs. He also lanquished in jail five days. The medical men who appeared against the man, traveled 60 miles or more to get to the trial.

IOWA.

Burglarized.—The offices of Drs. John B. Findlay and Chas. D. Rawson were recently entered by burglars, who escaped with surgical instruments and appliances valued at $600.

Mercy Hospital Dedicated.—St. Joseph's Mercy Hospital, Dubuque, erected at a cost of more than a quarter of a million of dollars, was dedicated with imposing ceremonies, February 5, by Archbishop Keane.

Middleton Bust Dedicated.—A bust of the late Dr. William D. Middleton, Davenport, professor of surgery and dean of the medical department of the State University, Iowa City, was formally dedicated in the new medical building of the university, February 28.

KENTUCKY.

Fined.—Four physicians of Lexington were fined $10 and costs each for failure to pay the municipal license fee of $10 required by the city ordinance.

Personal.—Dr. William Keeney, Jr., Paris, coroner of Bourbon County, slipped on an icy pavement and fell, breaking two ribs.——Dr. W. Johnston Bars has been appointed city physician of Paducah, vice Dr. Robert Rivers, resigned.

The Fight Against Smallpox.—The State Board of Health, which suspended the quarantine against Trigg County until March 4, has extended the period during which the people of the county may be revaccinated or vaccinated, for ten days. Vaccinations are being made, and the smallpox situation is rapidly improving.——Warren County put in effect a strict quarantine against Simpson County, where smallpox is prevalent, but the quarantine was raised March 2, as the people of the county had complied with the general vaccination order.

MARYLAND.

Personal.—Dr. Timothy Conroy, Mount Savage, was severely injured and may lose his sight from an explosion of a vial containing nitroglycerin, which came in contact with some nitric acid, and which he was employing in an operation.——Dr. William H. Noble, late of Philadelphia, was elected on March 9 physician-in-charge of the Western Maryland Hospital, Cumberland.

Frederick Hospitals.—On March 7 the Hood wing of the Frederick City Hospital was opened with exercises and a public reception. The wing is a gift from Mrs. Margaret S. Hood, and was constructed at a cost of about $10,000. It doubles the capacity of the institution (with its 49 patients), and includes a sun parlor and elevator. The new rooms have been furnished by patrons and friends of the institution. About $25,000 has been raised through the efforts of about 30 women, and there are 5 absolutely free beds. An ambulance was recently presented to the hospital by a New York physician. The hospital is supported and patronized by 27 local physicians.——The annual report of the Emergency Hospital of Frederick County shows that 232 cases were treated during 1904. Of these, 126 involved operation, with one death. The total receipts (including $1,200 received from the state), were $16,475. This institution was organized by and is under the management of the County Medical Society, and consists of a large three-story building and lot. It has two public wards, two private wards, seven private rooms, and an operating room. The medical staff consists of Drs. Henry P. Fahrney, Samuel T. Haffner, William C. Johnson, Wilson A. Long, Ira J. McCurdy and Franklin B. Smith. The wards of this hospital are open to the poor free.

Baltimore.

Personal.—Dr. Wirt A. Duvall has been appointed assistant surgeon of the Fourth Maryland Infantry.——Dr. William A. Moale is at Palm Beach, Fla.

Medical Officer for Students.—There are 291 medical students in Johns Hopkins Medical School, 56 of whom are from Maryland. The trustees of the University have authorized the appointment of an official medical adviser to the students of the medical department. For the present academic year Dr. Rufus I. Cole, resident physician to the hospital and associate in medicine in the university, holds this position. The University Circular says of this office: "This officer is to have a definite hour for consultation with medical students, is to be prepared to visit in their own homes, when called on, such students as are unable to meet him at his consultation hours, and to obtain, when necessary, the services of specialists for special examination and treatment. This medical service is to be without cost to the students, the salary of the adviser being paid by the medical department of the university."

MASSACHUSETTS.

Bequests.—William H. Williams of Boston left $5,000 to the Hyde Park Hospital for Crippled Children, and the same amount to the Boston Home for Incurables.——Mrs. Andrew G. Weeks has given $5,000 to the Nursery for Blind Babies.

Special Legislation for Osteopaths.—The Massachusetts Committee on Public Health has given the osteopaths "leave to withdraw" on the petition recently presented by them for special legislation, noted in a recent issue of The Journal.

Militia Changes.—Dr. David Cheever, Boston, has been appointed major and surgeon to the First Cadets, vice Dr. Charles Green, resigned, and retired as lieutenant colonel.——Dr. Horace Binney has been commissioned first lieutenant and assistant surgeon, vice Cheever, promoted.

Infants' Hospital Report.—The Thomas Morgan Rotch, Jr., Hospital for Infants cared for 11,637 infants as out-patients last year, 2,540 being new cases, and 297 infants in the wards. The expenses are largely met by a fair, which is held this year at the Hotel Vendome, March 24 and 25.

Harvard's New Buildings Well Under Way.—The external walls of the laboratories of the New Harvard Medical School are practically completed, and with the return of warmer weather work has been resumed on the administration building. The group of white marble buildings is most impressive. It will require at least another year, however, to complete the interior furnishings.

Would Abolish Drink Hospital.—There is a strong movement to abolish the Massachusetts Hospital for Dipsomaniacs at Foxboro. There are two propositions for the use of the buildings. One would give them to the Massachusetts Board of Charity to be used as a Home for Crippled and Deformed Children. The other would give them to the State Board of Insanity, together with $100,000 for constructing and furnishing new buildings, in order to meet the demand for 300 to 500 new beds made each year on this board.

Opposition to Pesthouse Location Bill.—Pressure on the Committee of Public Health of the Massachusetts Legislature to secure the passage of a bill forbidding the location of a smallpox hospital, pesthouse, or contagious hospital within 100 rods of any boulevard or parkway, has met so much opposition on the part of Boston and various other cities and towns which would be obliged to give up their present quarters and secure new ones at a large expense, that the committee is at a loss to decide and has asked the advice of the State Board of Health on the matter.

Elimination of Tuberculosis.—Statistics recently published by the Boston Board of Health shows that tuberculosis is being rapidly eliminated. Fifty years ago the annual death-rate per 10,000 population was 49. Last year it was less than 21. Ten years ago the disease was more fatal in Boston than it was in Philadelphia, New York, Chicago, Brooklyn, St. Louis, London, Berlin, Glasgow and Liverpool. Already the condition is better than in Philadelphia and New York. Great improvements have been made in many of the wards of the city, and a net average decrease as indicated, the shifting of population being partly responsible. This is specially true where the negroes and Irish have been replaced by Jews and Italians. With an average yearly mortality of 11.33 per cent. of the total mortality Boston furnishes only 40 free beds.

Oppose Antivivisection Bill.—Petitions for an antivivisection bill before the Massachusetts Committee on Probate and Chancery this year made the unique plea that such a bill was favored by ex-Governors Claflin and Boutwell, who have recently died, and would be a graceful compliment to their memories. The bill was opposed by Drs. Harold Ernst and Edward H. Nichols of Harvard Medical School; Dr. Horace Packard of Boston University Medical School; Dr. Henry P. Walcott, chairman of the State Board of Health, for Harvard College and the Massachusetts General Hospital; Dr. Arthur T. Cabot, for the Massachusetts Medical Society; Drs. Samuel H. Durgin and Hibbert W. Hill, for Boston Board of Health; Dr. A. E. Austin for Tufts Medical School; Dr. Langdon Frothingham, for veterinaries; Dr. David W. Cheever, for the medical profession: Prof. A. W. Wise, for Boston University; Prof. Mary Wilcox for Wellesley College, and Dr. Theobald Smith.

MINNESOTA.

Internes and Alumni Organize.—The Internes and Alumni Association of the Minneapolis City Hospital was organized recently. Dr. Hugh S. Wilson was elected president and Dr. James Ballard secretary and treasurer.

Mothers and Babes Endangered.—A fire in the Maternity Hospital, Minneapolis, early in the morning of February 26, endangered the lives of 14 mothers, their infants and the nurses. By quick work all were removed without casualty. The damage to the building will be about $1,500.

Membranous Croup, Not Diphtheria.—On the ground that membranous croup and not diphtheria was the cause of death of a child, Dr. Marius J. Jenson, Minneapolis, was declared not guilty of the charge of criminal negligence in failing to report a case of diphtheria to the Health Department.

Personal.—Dr. Ole E. Linjer, assistant city physician of Minneapolis, has resigned. Dr. Hugh Wilson succeeds him. Dr. Linjer was immediately appointed a member of the State Board of Medical Examiners, vice Dr. Charles M. Cannon, St. Paul.——Dr. Phillip Mueller, Minneapolis, was held up and robbed of $50 recently.——Dr. William H. Rumpf, Faribault, has gone to the Bahamas for the remainder of the winter.——Dr. Samuel Musgrave, Jr., has resigned as assistant city physician of Minneapolis.——Dr. Arthur B. Ancker, St. Paul, has been unanimously re-elected city physician and physician of Ramsey County for four years.

MISSOURI.

Exonerated.—Dr. Walter C. G. Kirchner, superintendent of the Emergency Hospital, St. Louis, who was held responsible for the death of an insane patient, was exonerated at a special meeting of the Board of Health called February 28.

Verdict for Defendants.—In the case of William Ritenger, Greenwood, against Drs. Leander W. Cape, Maplewood, and R. Brent Murphy, Ellendale, in which he claimed $10.000 damages for the loss of an arm, the jury returned a verdict for the defendants.

Personal.—Dr. James C. Nunn, Bowling Green, has been appointed a member of the Asylum Board for the Hospital for the Insane, No. 1, Fulton.——Dr. Gustav C. Eggers, Clayton, has been reappointed physician of St. Louis County.——Dr. Larkin H. Calloway, Nevada, has been appointed superintendent of Hospital for the Insane, No. 3, Nevada, vice Dr. Joseph F. Robinson, removed.

NEW YORK.

Syracuse Has Scarlet Fever.—There are now nearly two hundred cases of scarlet fever in Syracuse, and 145 houses are under quarantine.

Bequest.—By the will of Father Thomas Plunkett, Ogdensburg City Hospital receives $1,000, and one-half of the residue of his estate after certain legacies have been paid.

Fire in Hospital.—A fire occurred in St. Joachim's Hospital at Watertown, March 6. A dozen patients were rescued from the burning building with difficulty. The damage was about $5,000.

Illegal Practitioner Imprisoned.—"Dr." Isaac A. Finch, Buffalo, who was recently found guilty of practicing without a license, was sentenced on March 1 to imprisonment for three months in the Erie County Penitentiary.

Members of State and American Medical Association.—There are at present 1,683 members of the New York State Medical Association, of this number 1,121, or more than 66 per cent., are members of the American Medical Association.

State Will Pay for Cattle Killed.—A bill has been passed by the assembly providing for payment for cattle killed to prevent the spread of tuberculosis. In case of localized tuberculosis the state will pay 60 per cent. of the appraised value of the cattle, and in general contagion 40 per cent.

Fire at State Hospital.—A fire occurred at the Buffalo State Hospital for the Insane. By virtue of the training obtained by a fire drill every day all the patients in the wing in which the fire was discovered, numbering 170, were aroused from their sleep and marshalled into another building in a few minutes.

Personal.—Drs. Edward J. Meyer and Henry C. Buswell, Buffalo, have returned from Europe.——Dr. J. Henry Dowd, Buffalo, has been elected secretary of the medical staff of Mercy Hospital.——Dr. Martin Bessemer, Ithaca, has been appointed a member of the State Board of Medical Examiners, vice Dr. William M. L. Fiske, Brooklyn, deceased.——Dr. Parson G. Udell, Spencerport, was thrown from his sleigh, March 4, and sprained his ankle.

For Purer Milk.—The Five States Milk Producers' Association, whose members furnish most of the milk for the markets of New York, met in Binghamton, March 7, to consider ways and means for getting a purer milk supply for New York City. They claim that the middlemen remove from 3 to 5 per cent. of the butter fat and then adulterate the milk and sell it at a higher price than is warranted by that paid to the farmers. They have sent a committee to the assembly to work in favor of the Fish bill, which aims to prevent adulteration of milk.

Finance Committee Visitation.—The finance committee of the state legislature visited Buffalo for the purpose of making a personal inquiry into the needs of appropriations which have been asked for by several of the state institutions in that city. The State Cancer Laboratory has again asked the state for an appropriation of $15,000 to carry on the research work on cancer. Thus far the state has spent $100,000 on this institution. The committee also visited the four new buildings of the Buffalo State Hospital which are under process of erection; a new home for the superintendent, a new home for the medical staff, a nurses' home, and an amusement hall. The total cost of these buildings is about $100,000.

Vital Statistics for January.—The total number of deaths in this state for January was 11,875, or an annual rate of 18.5 per 1,000, according to the bulletin of the State Department of Health. There were about 400 more deaths than in December, and there was the same increase over the average mortality of the month. Pneumonia caused 1,800 deaths, consumption, 1,166, and Bright's disease, 780. Cerebrospinal meningitis caused 150 deaths, which is a larger mortality than any since last June. Diphtheria caused 250 deaths, which was less than the average. There seemed to be more influenza in the rural than in urban municipalities. There has been no death from smallpox in the state since last October.

New York City.

Will Equip Wards.—Dr. William F. Campbell has volunteered to provide complete furnishing for the operating and sterilizing wards of the Swedish Hospital, Brooklyn, in memory of his mother.

The Donor Known.—The director of the Manhattan Eye, Ear and Throat Hospital, who it was announced last week had given $25,000 toward the building fund, was Mr. Frank Tilford. His donation was for the construction of a building for an otologic clinic.

Infectious Disease Inquiry.—The board of aldermen has appropriated the $35,000 asked for by the commissioner of the health department in order to make a census and inspection of the congested districts so as to aid in decreasing infectious diseases in the tenements.

Condensed Milk Adulteration.—Evidence has beeen collected and sent to the state health department that large quantities of condensed milk, impure and below the standard, are being sold in New York City. It is said that the attorney general will immediately prosecute a number of big jobbers and dealers.

Smallpox Among Strike-Breakers.—Three cases of smallpox were discovered among the strike-breakers herded on the *Northam* in the East River. Some of the men from the infected vessel have been quartered in barns in 129th Street and Second Avenue. A case of scarlet fever was also reported among strike-breakers in Marion Hall, where 70 men were quartered.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended March 4, 390 cases of tuberculosis, with 188 deaths; 276 cases of diphtheria, with 30 deaths; 248 cases of scarlet fever, with 22 deaths; 252 cases of measles, with 6 deaths; 42 cases of typhoid, with 10 deaths; 98 cases of chicken-pox, 3 cases of smallpox, and 60 deaths from cerebrospinal meningitis.

Ground Broken for New Hospital.—Ground has been broken for the new Manhattan Eye, Ear and Throat Hospital in 64th Street. According to the amended plans the hospital will cost between $450,000 and $500,000, including the equipment. An unusual feature will be the sun galleries. This is believed to be a great step in advance in hospital construction. The building itself will be six stories high, and in order to obtain space for the hospital equipment the architects have planned a basement of five different levels below the first floor.

Water Supply Assured.—An agreement regarding water supply has been entered into between representatives of the city and representatives of the objecting Hudson River counties. Westchester County is to be permitted to tap the Croton aqueduct to get a supply for villages and cities along its route. An arrangement has been made with Putman County and with Dutchess County by which creeks will be let alone in these counties so far as manufacturing interests are concerned. New York may go into Ulster County, provided property owners get compensatory damages.

Conrad's Conviction Affirmed.—The Appellate Division of the Supreme Court has affirmed the conviction of Edward E. Conrad on the charge of attempting to commit abortion. The county medical society was instrumental in securing his arrest and trial. He was sentenced to serve not less than one or more than two years in state prison. The appeal was made on the ground that he was lured into the trap that resulted in his arrest, but according to the appellate division these contentions are demolished, and it is held that he was properly convicted.

Death Rate Lower.—The health commissioner reports that last week's death rate was equivalent to an annual rate of 20.47 per 1,000, while the rate for the corresponding week last year was 24.35. In 1903 the figures for the corresponding week were 20.67. There have been fewer deaths from all causes over the same week last year, excepting cerebrospinal meningitis. Deaths from this cause became sufficiently numerous in March of 1904 to attract attention, while in April and May a remarkable increase was observed. The record for the past year from cerebrospinal meningitis was 1,211, or more than two-thirds of the total for the entire state. Dr. Darlington has been empowered to ask that a small sum be appropriated for the investigation of cerebrospinal meningitis. It is thought that the detailing of a government physician to help in the work will be a good thing. Personally Dr. Darlington favors fumigation after cases of this disease, but he wishes the opinion of a commission of leading physicians.

NORTH DAKOTA.

Anatomy Act.—A third bill passed by the State Legislature is an act to promote anatomic knowledge and to provide for anatomic material for such purposes, similar to those which obtain in other states.

State Hospital Overcrowded.—The accommodations at the State Hospital for the Insane, Jamestown, are so inadequate that wards intended to accommodate 15 or 20 patients now are made to hold 50; that sitting rooms are turned into dormitories, and that bathroom and water-closet accommodations are absolutely insufficient and insanitary. For this reason the trustees have asked for new buildings and repairs, $100,000; for maintenance, $65,000; for fuel, $26,000; for wages and salaries, $57,800, sundries bringing the amount needed to $284,290.

State Bacteriologic and Pathologic Laboratory.—A bill has passed the legislature, and is now awaiting the signature of the governor, creating a state bacteriologic and pathologic laboratory, to be located at the State University and School of Mines, and to be under the control of the university trustees and the professor of bacteriology and pathology at the university, who is to be the director. The purpose of the laboratory is to make bacteriologic examinations of all kinds, and examinations of pathologic tissues submitted by the State Superintendent or county superintendent of public health or any licensed physician of the state. The specimens so obtained are to be placed in the museum of the university, and bulletins and reports are to be issued from time to time detailing the results of the work done in the laboratory. The director is also made state bacteriologist ex-officio.

Medical Practice Act Amended.—Hereafter license to practice medicine will be awarded on presentation of a diploma granted by a college giving four courses of lectures of at least eight months each and an examination in prescribed subjects. The board is given power to revoke or refuse a license for dishonorable or immoral conduct, chronic or persistent inebriety or mental aberration, excessive use of narcotics or for the practice of criminal abortion. In complaints for violating the provisions of this section of the law, the accused must be furnished with a copy of the complaint and be given a hearing before the board in person or by an attorney. The law provides for reciprocity as follows: The board, in its discretion, may grant license for the same fee ($20) without examination to applicants examined and licensed by other state examining boards maintaining standards not lower than those provided for by the law of North Dakota.

PENNSYLVANIA.

Philadelphia.

Bequests.—By the will of Kate L. Carrick $1,000 is devised to the Home for Aged Couples.——The will of Margaret Frank bequeaths $200 to the Maternity Hospital.——By the will of Mary Sharkey, St. Agnes' Hospital received $8,500.

Resident Physicians Appointed.—The following men have been appointed resident physicians in the University Hospital for a term of two years: Eldridge L. Eliason, Stirling Walker Moorhead, George Morris Piersol, Frederick Prime, Jr., Howard G. Schleiter.

Medical Inspection in February.—The medical inspectors during February made 2,215 inspections, excluding schools. The number of fumigations ordered were 690. The number of cases for special diagnosis 25. The total number of visits to schools aggregated 4,950; 823 children were excluded from schools: 255 cultures were taken; 91 injections of antitoxin were made, and 557 vaccinations were performed.

The Typhoid Fever Situation.—Between January 1 and February 17, there were reported 612 cases of typhoid fever. Of this number 8 occurred in that part of the city getting filtered water from the Roxborough filters, and only one case occurred in that part of West Philadelphia getting exclusively filtered water from the Belmont filters. From that part of West Philadelphia not supplied with filtered water 72 cases were reported. Based on cases per 1,000 in population, the above figures give averages of the seven weekly rates—for the entire city, 5.87 per 100.000 population; for Roxborough 1.3 per 100,000 population: for the filtered water district of West Philadelphia, 0.29 per 100.000 population.

Parochial Schools and Bureau of Health.—As a result of a conference between the bureau of health and the authorities of the Catholic Church, an agreement has been reached whereby the parochial schools of the city would be placed under the jurisdiction of the bureau of health, so far as relates to vaccination. In the future no unvaccinated child will be admitted to the parochial schools and all unprotected children found by the medical inspectors in these schools will be excluded until the operation has been performed. Since the beginning of the inspection of these schools 1.775 children have been discovered who either never have been vaccinated or whose vaccination scars were of doubtful protective value. These children have all been vaccinated and permitted to return to school.

Health Report.—The total number of deaths reported for the week was 599, as compared with 551 for last week, and 709 for the corresponding period of last year. Pneumonia is still prevalent, the deaths therefrom being 78, or 4 more than last week. For the first time this winter the deaths from tuberculosis—80—exceeded those from pneumonia. Typhoid fever is on the increase, and this is attributed by the authorities to the spring thaw, which has polluted the water supply. One hundred and seventy-eight cases of the disease were reported, with 12 deaths. Last week only 92 cases were reported. The principal causes of death for the week were as follows: Diphtheria, 10; cancer, 24; paralysis, 35; heart disease, 57; enteritis, 14; and Bright's disease, 50. The cases of contagious disease reported during the week numbered 272, with 24 deaths, as compared with 186 and 19 deaths for the preceding week.

Disappearance of Smallpox.—The last case of smallpox recorded in this city was Dec. 17, 1904. Since then the city has been entirely free from the disease. During the past four years about 1,000 medical students, 60 physicians, 100 nurses, and over 100 servants have been freely exposed to smallpox in the wards of the Municipal Hospital, the medical students being admitted to study the cases. Of this group, approximately 1,250 individuals, only 1 contracted smallpox. This individual, a medical student, descendant from an anti-vaccination family, through purposeful deception, gained access to the smallpox wards, contracted the disease, and was so seriously ill that for a time his life was in extreme jeopardy. During the year the percentages of deaths in smallpox patients in the Municipal Hospital may be classified as follows: Of unvaccinated cases, 32.73 per cent. died; of those vaccinated in infancy with one good mark, 3.81 per cent. died; of those vaccinated in infancy, with one fair mark, 8.13 per cent. died; and of those vaccinated in infancy, with one poor mark, 11.25 per cent. died. In general the death-rate among all cases that had ever been vaccinated was 6.72 per cent., while that for unvaccinated cases was 32.73.

TENNESSEE..

Meharry Commencement.—The commencement exercises of Meharry Medical College, Nashville, were held February 28. A class of 61 received diplomas.

Medical Examinations.—A bill has been introduced providing that, if an applicant has taken a four-year course at an approved medical institution, and in addition a post-graduate course at an approved institution, the Board of Medical Examiners shall not be required to examine him, to ascertain his ability to practice medicine, taking his diploma as evidence.

Convicted.—"Dr." David Garfinkle, Nashville, has been found guilty of practicing medicine without first having obtained a license from the State Board of Medical Examiners, and has had motion entered for a new trial.——"Dr." J. L. Lehr has been convicted, at Memphis, of sending questionable letters through the mails, and has been sentenced to be imprisoned one year in the penitentiary and to pay a fine of $250.

CANADA.

Personal.—Dr. J. George Adami, professor of pathology in the Medical Faculty of McGill University, has been made a fellow of the Royal Society of England.

Amalgamation of McGill and Bishops.—Meetings are being held between the medical faculties of McGill University and the Bishop's College University, Montreal, looking toward the amalgamation of Bishop's Medical Faculty with that of the University of McGill. No doubt the union would be favored by the medical profession of Montreal, especially as McGill is anxious to strengthen herself to contend with her powerful rival, Toronto.

Elections to the Medical Council of British Columbia.—The British Columbia Medical Council elections, February 15, resulted as follows: Victoria, Dr. J. C. Davie, Dr. O. M. Jones and Dr. C. J. Fagan; Vancouver, Dr. R. E. McKechnie and Dr. W. J. McGuigan; New Westminister, Dr. R. Eden Walker; Kamloops, Dr. Arthur P. Proctor. This is the old council re-elected with one exception, Dr. McKechnie taking the place of Dr. LeFevre, who did not offer himself as a candidate. It is taken as an endorsement of the action of the council which caused the names of two practitioners to be erased from the register for unprofessional conduct, the names, however, having since been ordered re-enrolled by order of the court.

FOREIGN.

Portrait Memorial to Karl Gegenbaur.—A life-size, marble bust of Karl Gegenbaur, the great student of comparative anatomy, is to be placed at the entrance of the Institute of Anatomy at Heidelberg, of which he was director for thirty years. All who wish to share in this memorial are asked to send their contributions to Prof. M. Fürbringer of Heidelberg.

Honors for a Russian Physician.—The municipal authorities of Moscow have decided to erect a memorial to the "never-to-be-forgotten fellow citizen, physician and philanthropist," Dr. Haas, and also to found and maintain a home for incurables to be called by his name.

Medical Certificate Before Marriage.—A Russian exchange states that the Armenian church in the Caucasus has taken the decided step that none of the clergy is allowed to perform the marriage ceremony unless the contracting parties can produce a medical certificate in regard to health.

Plague in India.—There were 34,000 deaths from plague in India during the first week in March. The Indian government is making heroic efforts to eradicate the disease by burning down whole sections of towns and segregating the inhabitants. Owing to the climate and to the conditions in the outlying districts and native sections of towns, it is difficult to cope with the epidemic, which is continually breaking out at fresh points. It is reported that 90 per cent. of those infected die.

The Porto Rico Medical Association.—The monthly bulletin of the Asociacion Medica de Puerto-Rico entered on its third year of publication in January. It announces in a recent number that its exchanges are at the disposal of the members of the association, and will be loaned, on request, to be returned by mail in a week. The annual meeting of the association was held in December, when committees were appointed to study means to prevent the spread of tuberculosis and venereal diseases in the island. Dr. Seaman, returning from Manchuria to America, described the sanitary measures in the Japanese army.

First National Medical Congress in Cuba.—More than 400 physicians have already announced their intention of attending this congress, the first national one to be held on Cuban soil. The subject of the prophylaxis of malaria and yellow fever is to be presented by J. Guiteras, A. D. Albertini and E. Martinez for the latter and I. Agostini, A. Agramonte and T. Coronado for the former. Parasitology in Cuba will be discussed by a number and the campaign against tuberculosis in the island, the sanitary statistics and the medical hydrology of Cuba will also be the subject of several addresses. E. Lopez, Juan Santos Fernandez and representatives from each province have been appointed honorary presidents. The congress is to be held at Havana in May, and the subscription is $3. The executive committee have commenced the publication of a bulletin which will contain abstracts of the principal addresses, to stimulate discussion.

Precautions Against Smallpox in Saxony.—The *Public Health Reports* state that in order to prevent the importation of smallpox into the kingdom of Saxony, the minister of the interior has decreed that all foreign workmen must be vaccinated within seven days after their arrival in Saxony, unless they can show a certificate stating either that they have been successfully vaccinated within the last ten years or have been twice unsuccessfully vaccinated, exception being made of persons who have already had smallpox. Persons who have performed military service in countries like Austria-Hungary and Italy, where recruits are vaccinated on entering the army, are also exempted. A certificate is given by the vaccinating physician showing the result of the vaccination. If the operation proves unsuccessful, it is to be repeated after one year, in case that on the expiration of such period the workman is still an inhabitant of Saxony.

Official List of Russian Wounded.—The *St. Petersburg. med. Wochft.* of February 18, states that from the beginning of the war to January 13, 1905, the number of sick and wounded was as follows: 1,710 wounded and 2,308 sick officers and 53,890 wounded and 72.531 sick privates, a total of 130,439 sick and wounded. The number of deaths during the same period among the sick and wounded was 45 wounded and 62 sick officers, and 1,242 wounded and 2,668 sick privates, a total of 4,007. The number sent to Russia was 559 wounded and 670 sick officers, and 4,121 wounded and 4,079 sick privates, a total of 9,429. On January 13 the number of sick and wounded still in the hospitals at the front was 21,554. The number of sick and wounded who recovered and resumed active service was 954 wounded officers, 37,110 wounded privates and 38,721 sick privates, a total of 77,727 who returned to their posts at the front. These figures do not include the Port Arthur district.

The Approaching International Medical Congress.—The fifth official bulletin issued by the executive committee of the Fifteenth International Medical Congress, to be held at Lisbon in April, 1906, has just been received. It brings the list of official addresses and of the speakers, and also the names of the committee of propaganda in each country, with the addresses of their secretaries. Dr. Ramon Guiteras, 75 West Fifty-fifth Street, New York, is the secretary for the national committee in the United States, as previously announced in these columns. Among the addresses we note one by Brouardel of Paris on "Death from Inhibition"; one by P. Aaser of Christiania on "Relations of Acute Infectious Diseases with Tuberculosis," and one by the editor of the *Brazil Medico*, A. de Azevedo Sodré, on "Pathology in Tropical Regions." The list is also given in the *Bulletin* of the various governments and scientific societies which have already appointed delegates to the congress, with the names of the delegates so far as ascertained.

Correspondence.

Isthmian Sanitation.

CINCINNATI, March 14, 1905.

To the Editor:—In my report on "Isthmian Sanitation" in THE JOURNAL, March 11, page 817, following a statement that the wards for malarious patients at Ancon were unscreened as late as February 21, I say:

"Yet in spite of these facts the Isthmian Canal Commission, in its report under date of Dec. 1, 1904, page 88, states that 'all cases of employes sick with malaria are taken into the Colon and Ancon hospitals and so screened that mosquitoes can not reach them'—a statement that is an absolute and unqualified falsehood."

On re-examining the publication in question, "Letter of the Secretary of War transmitting the First Annual Report of the Isthmian Canal Commission, 58th Congress, Third Session, House of Representatives, Document No. 226," I discover, much to my surprise and regret, that the report proper of the Isthmian Canal Commission ends at page 76 and that page 88, although headed "Report of the Isthmian Canal Commission," really falls within the report of Major-General Geo. W. Davis, as governor of the canal zone, rendered to the commission under date of Nov. 1, 1904. I beg to say frankly that if I had been aware of this fact at the time I framed my report I would have refrained from the harsh characterization that I unhesitatingly employed when I believed that the misleading statement had emanated from the office of the commission at Washington. For if it had emanated from the commission at Washington, which had made it physically impossible for the statement to be true, the characterization would have been thoroughly justified. Nobody, however, who has ever come in contact with General Davis, or who is familiar with his long and honorable career, and, particularly, nobody who has had occasion to observe his zealous and efficient devotion to duty in the canal zone would for a single minute believe him capable of even the slightest degree of deliberate misrepresentation. My explanation of the discrepancy between General Davis' statement and the fact—for discrepancy there exists—is that in framing his report he, not unnaturally, assumed that the plan that had been agreed on by the commission in the preceding August had been carried out in the ample time that had elapsed, little dreaming that the failure of the commission to furnish the necessary supplies had made it impossible to do so.

In this same connection and *apropos* not only of the status of the Sanitary Department, but of the efficient administration of affairs in general on the Isthmus, it should be stated that General Davis submitted a plan of organization which contemplated the creation of an executive committee, consisting of three members of the commission, including the governor of the zone, all three of whom should be constantly on the Isthmus and who should be invested with specifically defined authority to transact the necessary business of the commission *ad interim*. In submitting this very wise and obviously practicable plan, General Davis, among other things, said that "there is, perhaps, no controlling necessity why the head of the Sanitary Department should report to the governor of the zone," and proposed that such reports should go to the suggested executive committee. But the commission, by a vote of

4 to 2—Mr. Parsons was not present—rejected General Davis' plan and instead adopted Mr. Grunsky's very remarkable scheme of organization—after which they sailed away to build the canal from comfortable chairs in the Star building at Washington.

I ask for the publication of this, not only as a matter of justice to General Davis and to myself, but by way of apology to the Isthmian Canal Commission. Charles A. L. Reed.

The Abuse of Proprietary Remedies.

Paris, Ill., March 10, 1905.

To the Editor:—A few days ago I received a pamphlet gotten out by a proprietary medicine firm, containing an editorial from the *Vermont Medical Monthly*, attempting to justify the use of secret remedies. We are not surprised to find such articles in some so-called medical journals, but expect better things from the official organ of a state medical society. Some physicians throw secret remedy circulars into the waste paper basket at once, but I examine them, because some are well written, and because I enjoy separating the true from the false statements which they contain. After giving the subject a good deal of thought I have come to the conclusion that any physician who prescribes a secret remedy is not only very foolish, but does great harm to the community in which he pretends to practice medicine. He is like the physician who, when he found any drug that was not labeled, put it into a jar, and when he had a patient whose case he could not diagnose, stirred up the contents of the jar and gave him a few doses. As the practice of medicine consists in doing the right thing at the right time, it is absolutely necessary that the physician should know the exact quantity of each ingredient in his prescription. It is amusing to find a physician who—so far behind the times that one feels like complimenting him—claims that he is up to date simply because he is using the latest secret remedy advertised in his medical journal. He reminds me of the footrace at a circus, in which the clown, when he finds that he is being distanced, cuts across the ring and claims to have won the race. W. H. Ten Broeck.

Prophylaxis of Venereal Diseases.

Detroit, Mich., March 9, 1905.

To the Editor:—It was with the greatest interest that I read the articles in The Journal, March 4, on the relation of venereal diseases to society, and I am heartily in sympathy with any movement which will assist in diminishing their prevalence.

In my opinion much could be accomplished toward the desired end by publishing such articles as those by Drs. Morrow, Kelly and Bulkley, in the newspapers. There is no reason why the tender sensibilities of certain over-modest individuals should be any more shocked by these articles than by the advertisements of various "quacks," which appear each day. The publishers might decline to print them, unless paid to do so, but the cost of even a paid publication would be small, compared to the educational benefit derived from it. It is all right to print these articles in medical journals, but these publications reach very few people outside the profession, and it is the laity that must be reached, if any good is to be effected.

Frank L. Truitt.

Booklet on Fractures Disclaimed.

Washington, March 7, 1905.

To the Editor:—I have been receiving an increasing number of letters asking for copies of a booklet on "New Method of Reduction of Fractures and Dislocations," said to have been printed by the government and to be sent to applicants in any number desired. I know nothing and am unable to learn anything about this booklet. To the first letters I replied, but I can not undertake to continue to do so, and I have notified the postmaster here not to send me any more letters addressed to "Prof. D. K. or G. K. Lamb." D. S. Lamb.

Queries and Minor Notes.

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

HEADACHE POWDERS.

Chicago, Feb. 28, 1905.

To the Editor:—I enclose sample of "headache powders" which a patient of mine has been purchasing and taking *ad libitum*, and which seriously interfered with her recovery from an attack of mucopurulent otorrhea. I should like to learn the ingredients of the preparation. J. T. Osbaldeston.

Answer.—Most of the "headache powders" on the market contain acetanilid as their essential constituent. Usually small percentages of caffein are also found, this being added to overcome the depressant effect of the acetanilid. The powder forwarded by Dr. Osbaldeston has been analyzed by our chemist, who reports it to contain 21.9 per cent. caffein and 76.5 per cent. acetanilid.

DESTRUCTION OF TOOTH PULP.

Eagleville, Tenn., March 9, 1905.

To the Editor:—Please name a medicine that will kill the nerve of a tooth and state how to use it without injury to the patient.

E. L. Williams.

Answer.—Pulps of the teeth are destroyed by the application of arsenic direct to the exposed surface. Arsenous acid equal in quantity to about one-quarter and not exceeding one-half the size of a pinhead, is made into a paste by the application of carbolic acid, creosote or one of the essential oils. The cavity of the tooth is thoroughly dried and the preparation is applied on the point of a small instrument direct to the exposed pulp. If the cavity is a difficult one for operation, a pellet of cotton the size of a pinhead may be saturated with this small quantity of the paste which may be applied direct to the exposed pulp. The tooth cavity is now sealed with wax or some substance that will seal the cavity moisture tight. This is necessary to prevent the arsenic from coming in contact with the gum and alveolar process. When the arsenic comes in contact with the pulp a severe pain is experienced and will continue until death of the pulp has taken place.

Marriages.

William T. Daly, M.D., to Miss Kate Reed, both of Cresco, Iowa, March 2.

Meverell K. Allen, M.D., to Miss Jessie M. Rubel, both of Louisville, March 1.

Howard R. Swayne, M.D., to Miss Annie Vodges, both of Philadelphia, March 1.

T. Weston Chester, M.D., to Miss Sara Hopkins King, both of Hartford, Conn., February 28.

Frank James Gibson, M.D., to Miss Berenice Julia Denio, both of Jackson, Mich., March 3.

Frank Arthur Zeller, M.D., to Miss Mabelle Rosenbush, both of Union City, Ind., March 1.

Robert Scott Hensel, M.D., Homestead, Pa., to Mrs. Flora L. Lupher of Pittsburg, Pa., March 1.

Lucian S. Lambert, M.D., to Mrs. A. B. Collins, both of Galesburg, Ill., at Chicago, March 4.

Albert Eugene Sterne, M.D., Indianapolis, to Miss Laura Mercy Laughlin of Cincinnati, March 4.

William Stewart Reoch, M.D., Phenix, R. I., to Miss Jeanette Macready of Providence, R. I., February 28.

Deaths.

Thomas Clement Kimball, M.D. Rush Medical College, Chicago, 1868, a member of the American Medical Association; founder of the Marion (Ind.) Hospital; a veteran of the Civil War; surgeon of the Fourth Indiana Infantry, U. S. V., during the Spanish-American War, and later division surgeon; died at Jacksonville, Fla., while on his way to his home in Marion, Ind., March 6, after a long illness, aged 62.

Henry F. Barnes, M.D. *Jefferson Medical College, Philadelphia*, 1854, of Indianapolis, some-time assistant superintendent of the Central Hospital for the Insane, Indianapolis; surgeon of the Eleventh Indiana Volunteer Infantry in the Civil War, died at St. Vincent's Hospital, Indianapolis, March 2, from injuries received in a street car accident six days before, aged 76.

Edward L. Mayo, M.D. Rush Medical College, Chicago, 1868, a member of the American Medical Association; for 25 years an active practitioner of Dekalb, Ill., prominent alike as a physician and a citizen, died at his home, March 2, after many months of illness from nephritis, aged 61. At his funeral the pallbearers were all medical men of Dekalb and vicinity.

James L. Goree, M.D. Louisville (Ky.) Medical College, 1876, a member of the American Medical Association; for sixteen years an esteemed practitioner of Pine Bluff, Ark., died at his home in that city from pneumonia, March 6, after an illness of several weeks, aged 52. Members of the local profession acted as honorary pallbearers.

Garrett Murphy, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1879, of Garden City, Minn., committed suicide on his homestead near Pine River, Minn., by shooting himself through the head, January 4, aged 54. He was a member of the Blue Earth County Medical Society, and of the Southern Minnesota Medical Society.

John J. Prendergast, M.D. College of Physicians and Surgeons in the City of New York, 1868, one of the founders of the Manhattan Eye and Ear Hospital, some-time president of the Hudson County (N. J.) Medical Society, and county physician, died at his home in Brooklyn, March 1, after a short illness, following a fall, aged 57.

John W. Franklin, M.D. Transylvania University Medical Department, Lexington, Ky., 1841, surgeon of the Seventh Tennessee Infantry, C. S. A., in the Civil War, formerly a member of the Tennessee State Medical Association, died at his home near Gallatin, Tenn., February 28, aged 85.

John H. McClatchey, M.D. University of Louisville Medical Department, 1881, died at his home in Holly Springs, Miss., Dec. 18, 1904, from malarial hematuria, after an illness of nine days. He was a member of *the Marshall County Medical* Society.

David J. Swarts, M.D. Medical College of Ohio, Cincinnati, 1860, formerly of Auburn, Ind., assistant surgeon of the One Hundredth Indiana Volunteer Infantry in the Civil War, died on his homestead claim, near Liberal, Kan., March 3, aged 72.

John P. Ralls, M.D. Medical College of Georgia, Augusta, 1845, a member of the Alabama State Constitutional Convention, and later a member of the confederate congress, died at his home in Gadsden, Ala., November 23, aged 85.

Henry C. Van Gieson, M.D. University of Georgetown Medical Department, Washington, D. C., 1864, of Omaha, Neb., died at the family home in Dundee, Neb., March 7, from chronic nephritis, after an illness of two years, aged 65.

John Wiley Young, M.D. University College of Medicine, Richmond, Va., 1901, of Kinsale, Va., died in Bellevue Hospital, New York City, January 19, from injuries received from a fall on the ice several weeks before, aged 25.

Truman A. Pease, M.D. University of Vermont, Medical Department, Burlington, 1867, died at his home in Norwood, N. Y., February 22, aged 62. The physicians of the village and Dr. Frank J. Fuller, Potsdam, acted as pallbearers.

William G. Robinson, M.D. Bellevue Hospital Medical College, 1879, of New York City, committed suicide while suffering from melancholia, March 1, by shooting himself through the head, at East Freetown, Mass., aged 54.

John W. Lawson, M.D. New York University, New York City, 1861, surgeon in the Confederate service during the Civil War; formerly a member of congress, died at his home in Smithfield, Va., February 22, *aged* 86.

Thomas P. Mathews, M.D. Jefferson Medical College, Philadelphia, 1856, for twenty years a member of the Board of Visitors of the Medical College of Virginia, *died at his home in* Manchester, Va., January 13, aged 70.

Nicholas Nash, M.D. Kentucky School of Medicine, Louisville, 1893, of Garner, I. T., was shot and killed by a U. S. deputy marshal at Hanna, I. T., March 3, while resisting arrest on the charge of disturbing the peace.

John M. Stanley, M.D. Central College of Physicians and Surgeons, Indianapolis, 1894, of *Marion, Ind., died at the home* of his parents in Indianapolis, March 5, from tuberculosis, after an illness of two years, aged 30.

Paul Halderman Stehley, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1898, died at his home in Keyser, W. Va., from pneumonia, February 28, after a brief illness, aged 35.

Nathan G. Macomber, M.D. Department of Medicine, University of Pennsylvania, Philadelphia, 1871, died at his home in Central Village, Mass., March 6, from acute interstitial nephritis, aged 64.

Mortimer C. Coon, M.D. University of Buffalo (N. Y.) Medical Department, 1891, died at his home in Shelby Basin, Medina, N. Y., March 5, following an operation for appendicitis, aged 38.

William T. Edwards, M.D. Medical Department of the University of Tennessee, Nashville, 1889, died at his home in West Plains, Mo., March 2, from pneumonia, after an illness of one day.

Josiah Larendon, M.D. Medical College of the State of South Carolina, Charleston, 1861, for more than 40 years a beloved practitioner of Houston, Texas, died at his home in that city, March 6.

Andrew J. Weldon, M.D. Jefferson Medical College, Philadelphia, 1860, of *Paris Landing*, Tenn., who practiced in Henry County for more than 40 years, died in Paducah, Ky., March 7, aged 74.

John L. Irion, M.D. University of Louisville Medical Department, 1851, surgeon in the Confederate service during the Civil War, died at his home in Montgomery, Texas, Dec. 31, 1904, aged 79.

Charles N. Brush, Jr., M.D. Medical College of Ohio, Cincinnati, 1891, of Anderson, Ohio, died at Wickensburg, Ariz., Oct. 29, 1904, from tuberculosis, after an illness of two years, aged 32.

Daniel P. Fahrney, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1866, died from cerebral hemorrhage at his home in Hagerstown, Md., March 5, aged 65.

H. H. Young, M.D. Medical College of Ohio, Cincinnati, 1849, died at his home in New Carlisle, Ohio, February 28, from cerebral hemorrhage, after an invalidism of 15 years, aged 83.

John Willis Smith, M.D. Kentucky School of Medicine, Louisville, 1870, of Ardmore, I. T., while on his way to Chicago, died suddenly at St. Louis, from pneumonia, February 28.

George W. Rush, M.D. College of Physicians and Surgeons, Baltimore, 1894, died from pneumonia, at his home in Savannah, Ga., March 4, after an illness of three days, aged 42.

Martin H. Tierney, M.D. New York University, New York City, 1886, died at his home in Leominster, Mass., March 7, from septicemia due to a carbuncle on the neck, aged 45.

Evens B. Freed, M.D. Baltimore Medical College, 1887, committed suicide by shooting himself through the head at his office in Shippensburg, Pa., February 26, aged about 42.

Silas B. Giddings, M.D. Medical Department of the University of Missouri, St. Louis, 1849, died at his home in Gainesville, Fla., and was buried in Atlanta, Ga., March 6.

Ellis G. Whitehead, M.D. Medical Department of the University of Tennessee, Nashville, 1877, died at his home in Brushy Creek, Texas, February 27, after a long illness.

John M. Webb, M.D. Medical Department of the University of Tennessee, Nashville, 1878, of Cato, Ark., died recently at the home of his son in Olmstead, Ark., aged 69.

Liston V. Brown, M.D University of Nashville Medical Department, 1890, died at his home in Cleveland, Tenn., February 18, from influenza, after an illness of ten days.

James T. Henderson, M.D. Medical College of Indiana, Indianapolis, 1878, died at his home in Covington, Ind., March 2, from nephritis, after an illness of one week.

Reuben B. Detrick, M.D. University of Georgetown Medical Department, Washington, D. C., 1858, died at his home in Washington, D. C., Nov. 7, 1904, aged 77.

Jackson L. Moore, M.D. Medical College of Evansville, Ind., 1875, died at his home in Washington, Ind., from heart disease, after an illness of nineteen weeks, aged 71.

Andrew F. Means, M.D. College of Physicians and Surgeons, Boston, 1882, died suddenly from heart disease at his home in South Boston, Mass., March 3, aged 66.

J. H. Philpott, M.D. Cincinnati, 1854, the pioneer physician of New London, Iowa, died recently at his home in New London, aged 76, and was buried, March 7.

Samuel Belt Fisher, M.D., licensed 1897, who had practiced in Rossville, Ind., since 1857, died at his home in that place, March 5, from senile debility, aged 79.

Charles H. Brockhausen, M.D. St. Louis Medical College, 1871, died at his home in Herman, Mo., Dec. 19, 1904, from skull fracture, the result of a fall, aged 61.

James Thomas Dowle, M.D. Cooper Medical College, San Francisco, 1890, died at his home in Newman, Cal., from pneumonia, March 3, after a short illness.

Edgar W. Remington, M.D. Bellevue Hospital Medical College, New York City, 1888, of Providence, a fellow of the Rhode Island Medical Society, died recently.

Norborne C. Lewis, M.D., New York University, New York City, 1869, died at his home in Lawrenceville, Va., March 3, after a protracted illness, aged 56.

Samuel McGill, M.D. University of Virginia Medical Department, Charlottesville, 1864, died at his home in Schuyler, Va., March 2, from nephritis, aged 63.

Thomas H. Goodman, M.D. Cincinnati, 1866, died at his apartment in Saginaw, Mich., February 26, from disease of the liver of long standing, aged 64.

Seth Gordon Green, M.D. College of Physicians and Surgeons in the City of New York, died in El Paso, Texas, Oct. 25, 1904, from typhoid fever, aged 29.

James H. Cassidy, M.D. Charity Hospital Medical College, Cleveland, 1869, died at his home in Sharon Center, Ohio, March 3, aged 60.

John B. Bray, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1875, died at his home in Bridgton, Maine, March 1, aged 72.

William F. Eaman, M.D. Bellevue Hospital Medical College, New York City, 1877, died at his home in Gaines, N. Y., March 7, aged 52.

James Taylor Miller, M.D. Vanderbilt University Medical Department, 1878, died at his home in Collinsville, Ala., Dec. 10, 1904, aged 57.

William Ellershaw, M.D. Department of Medicine of the University of Pennsylvania, 1866, died at his home in Philadelphia, Dec. 9, 1904.

A. Granger Leland, M.D. University of Buffalo, (N. Y.) Medical Department, 1875, died at his home in Whitewater, Wis., Dec. 25, 1904.

Jeremiah B. Stair, M.D. Northwestern University Medical School, Chicago, 1876, died at his home in Lake Mills, Wis., Dec. 20, 1904.

D. M. Vosburg, M.D. Years of Practice, Ill., 1877, died at his home in Earlville, Ill., March 5, after a long illness, aged more than 80.

Charles W. Keifer, M.D. College of Physicians and Surgeons, Baltimore, 1877, died at his home in Mechanicsville, N. Y., Dec. 8, 1904.

Ellis A. Robert, M.D. Tulane University of Louisiana, New Orleans, 1871, died February 11, at his home in Hot Springs, Ark.

Frank Barbour King, M.D. Medical College of Ohio, Cincinnati, 1885, died at his home in Windfall, Ind., March 2, aged 49.

Cornelius J. Dumond, M.D. Albany (N. Y.) Medical College, 1865, died at his home in New York City, January 21, aged 68.

Claude Still, M.D. Memphis (Tenn.) Hospital Medical College, 1898, died at his home in Senatobia, Miss., Oct. 24, 1904.

John F. Minot, M.D. Long Island College Hospital, Brooklyn, 1882, died at his home in Boston, Nov. 16, 1904, aged 71.

G. W. Shepherd, M.D. Atlanta (Ga.) Medical College, 1897, died at his home in Apalachicola, Fla., Dec. 1, 1904.

Warren Uri Reynolds, M.D. New York, 1886, of Harlem, New York City, died in a sanitarium, March 4, aged 56.

Robert B. Noe, M.D. Missouri, 1890, died at his home in Thornton, Ind., February 1, from nephritis.

Jay A. Lovett, M.D. Chicago, 1890, died at his home in Carson City, Mich., Dec. 16, 1904, aged 50.

Richard T. Marks, M.D. Ohio, 1880, died recently at his home in Erie, Pa.

Book Notices.

The Suppression of Tuberculosis. Together with Observations Concerning Phthisiogenesis in Man and Animals and Suggestions Concerning the Hygiene of Cow Stables and the Production of Milk for Infant Feeding, with Special Reference to Tuberculosis. By Prof. E. von Behring, University of Marburg. Authorized Translation by Charles Bolduan, M. D. First Edition. First Thousand. Cloth. Pp. 85. Price, $1.00. New York: John Wiley & Sons. London: Chapman & Hall, Limited. 1904.

This work is of practical value to dairymen, cattlemen and officers of health boards, and contains much that is interesting and suggestive to physicians and others, who are studying the problems of tuberculosis. It consists of articles previously published in the German medical press, brought together and translated by Charles Bolduan. The author believes that a primary intestinal infection is necessary for the development of consumption in both man and animals, and that this infection occurs in very early infancy, and states that "the milk fed to infants is the chief cause of consumption." He intimates that infection of the very young readily occurs, because the intestinal mucous membrane of the new-born possesses no continuous epithelial covering and is lacking in development of the tubes of the ferment-producing glands. The second article consists of observations concerning the study of phthisiogenesis in man and animals.

An Introduction to Pharmacognosy. By Smith Ely Jelliffe, Ph.D., M.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in the Columbia University (College of Physicians and Surgeons), New York. Fully Illustrated. Cloth. Pp. 265. Price, $2.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1904.

This book, written to meet the need of students of pharmacognosy, departs, in many particulars, from the works heretofore published in this country. Special emphasis is laid on the microscopic characteristics of blood, though their macroscopic appearance is by no means neglected. Considerable attention is given to drug powders and the chemistry of the various drugs mentioned is touched on. As an introduction to pharmacognosy the book is of practical value, and while written for the student it will be found helpful to the physician who desires to have a good understanding of his materia medica.

Malignant Disease of the Larynx (Carcinoma and Sarcoma). By Philip R. W. De Santi, F.R.C.S., Surgeon to the Throat, Nose and Ear Departments, Westminster Hospital. Cloth. Pp. 104. Price, $1.50. New York: Wm. Wood & Co. 1905.

This is a small book devoted to a consideration of carcinoma and sarcoma as found in the larynx. It contains very much that is of statistical value. The various methods of operative treatment are described and discussed. The advantages of thyrotomy as practiced in England are fully shown. The book is simple and well written and contains a large fund of valuable information, but does not contain much that is original.

Miscellany.

MISSOURI DECISION AGAINST OSTEOPATHS.

Full Text of the Supreme Court Ruling in Suit for Damages for Treating Hip Disease as Partial Dislocation.

In the Supreme Court of Missouri.
Division No. 1, October Term, 1904.
No. 11651.

Goldie O. Grainger, by her guardian, *Appellant*, vs. Charles E. Still, *Respondent*.

This is an action to recover $10,000 damages for malpractice.

At the close of the plaintiff's case the court sustained a demurrer to the evidence, the plaintiff stood on the ruling, the jury returned a verdict for the defendant, and, after proper steps, the plaintiff appealed.

The petition alleges that the plaintiff is a minor, of the age of 7 years; that her father is dead, and that she prosecutes this case by her duly appointed guardian; that prior to September, 1895, she was afflicted with a slight stiffness in her right hip, but it was not sufficient to make her lame or to cause her pain or to materially interfere with her locomotion; that at said date the defendant held himself out as the president of the A. T. Still Infirmary, at Kirksville, in Adair County, and as a practicing osteopathic physician and surgeon, and as competent, qualified and able to treat and reduce fractured, dislocated bones, nerves, muscles and blood vessels, and to treat all such dislocations successfully and to reduce them osteopathically; that on said date the defendant "made an examination of plaintiff's hip and diagnosed her disease and pronounced it a partial dislocation of her right hip joint; that defendant assured plaintiff and her parents at that time that the reduction of said partial dislocation was a matter attended with no danger and readily and easily performed, and that he could reduce said partial dislocation without injury to plaintiff"; that in consideration of the sum of $25 paid to the said infirmary, the defendant "undertook to treat plaintiff for said so-called partial dislocation of her hip; that the defendant represented and stated to plaintiff and her parents that he would treat the muscles and tendons about plaintiff's right hip osteopathically until they were sufficiently relaxed before he could reduce said so-called partial dislocation of plaintiff's said right hip joint; that defendant from the date aforesaid did manipulate the muscles, tendons and blood vessels about plaintiff's right hip joint until about Nov. 10, 1895, when he determined that the muscles and tendons about plaintiff's right hip were sufficiently relaxed, and he then and there undertook to reduce the so-called partial dislocation of plaintiff's right hip.

"That in attempting to reduce said partial dislocation, so-called, of plaintiff's hip joint, the defendant negligently, carelessly and unskillfully took plaintiff by her right ankle, and with one of his hands and about the knee with the other hand and with force and violence, negligently, unskillfully and carelessly forced plaintiff's right leg upward, toward and against her body with such force and violence, and so negligently, carelessly and unskillfully, that he gave to plaintiff's said right hip joint a complete upward and backward dislocation. Plaintiff states that defendant did not reduce the said so-called partial dislocation of her right hip, but, on the contrary, the defendant so carelessly, negligently and unskillfully treated and managed plaintiff's disease and injury to her right hip that he permanently dislocated the same, and by defendant's careless, negligent and unskillful conduct in treating plaintiff's right hip, not only permanently dislocated the same, but injured, stretched and tore the muscles, nerves, tendons and blood vessels connecting with plaintiff's right hip joint, and as a result of defendant's said negligent, careless and unskillful treatment the plaintiff was thrown into a violent fever, which continued for a long space of time, and she was made sore, sick and to suffer great anguish and pain.

"That as a result of the careless, negligent and unskillful conduct and treatment of plaintiff's disease by defendant, her spine has become curved and her right leg rendered entirely useless and shorter than the other, and is gradually perishing, thereby rendering her maimed and deformed for life, and permanently injured, and her general health greatly impaired. Plaintiff further states that from November, 1895, until April, 1899, at the special instance and request of the defendant, she remained at the city of Kirksville aforesaid, taking osteopathic treatment under the direction of the defendant for her said hip, and until defendant refused longer to treat her and discharged the plaintiff."

The answer denies generally all the allegations of the petition, not expressly admitted, and then admits that the defendant is an osteopath, and that he treated the plaintiff osteopathically, and then alleges that at the time she was so treated she "was afflicted with hip-joint disease and a partial dislocation of the hip joint, all of her right hip as defendant then and now verily believes."

The case made by the plaintiff was this: In September, 1895, the plaintiff was a minor, aged about 3 years and 8 months, and lived with her parents in Plymouth, Ill. She was a strong, fat and healthy child, and had never required the services of a physician, except when teething. Her mother discovered a slight stiffness in her right hip when she stooped to pick up anything from the floor. She examined her hip, but could discover nothing the matter with it, and no soreness or tenderness. She had her examined by the family physician, Dr. McDaniel, and by Dr. Aiken, and they found no soreness or tenderness about the hip, but only a little stiffness when she stooped, and said that there was no dislocation, but were of opinion that she might develop hip disease. Her parents took her to Kirksville, to the defendant's infirmary, for examination. The defendant examined her, and told her mother that she had a partial dislocation of the hip, and that they handled cases of that kind successfully in two weeks, but she had better take a month's treatment. He further told her parents that she did not have hip disease. Her mother told him that her family physician said it might develop into hip disease; that her husband's people were consumptive, and she thought her father's condition might cause hip disease to develop in the child. The defendant examined her husband, but did not make a thorough examination, and said the child seemed hearty and well, and assured her mother that the child did not have hip disease, but that it was simply a dislocation. Thereupon plaintiff's parents took out a treatment card for a month, paying $25 therefor. On the following Monday the plaintiff's treatment by defendant began. It consisted of kneading the hip with the ends of his fingers and "rotating" the limb in the hip joint. The treatment lasted only three or four minutes. The plaintiff manifested no pain from the treatment. She boarded ten or twelve blocks from the infirmary, and walked back and forth every time she went for treatment, and exhibited no trouble or pain in so doing. The treatment was kept up three times a week for a little over a month, and then the defendant told her mother the hip was ready to be put back into place. On the day appointed the plaintiff walked from her boarding house to the infirmary as usual, and was in good condition. The defendant performed the operation, which is described by the mother, as follows: "He took hold of her hip, the end of her hip, with one hand a little above the knee and the other hand about her ankle, kind of brought the limb around and pushed it right up to the body, and that was all there was to it." When taken off of the operating table, she seemed hurt, cried, acted as if she could hardly catch her breath, could not stand up and sank down on the floor. She was taken back to the boarding house in a cab, crying and moaning all the time. She was put to bed, suffered great pain and acted as if she was going into convulsions. The plaintiff's mother sent for the defendant the next day, and he came and said he had put the hip into position, and "that he had given the ligaments an awful stretch"; that she would not be able to walk for several days, and that she was then too sore to be treated further at the time, but that the mother need not worry about her. She had high fever, and would scream with pain if she was touched, but the defendant did nothing then for her, the fever continued, the skin dried up and flaked off like it had been burned, and she had to be carried on a pillow for six weeks. The defendant came to see her four or five times within the next six months thereafter, but gave her no treatment. This was in November, 1895. By direction of "old Dr. Still," the mother then took plaintiff home for two months. Then she returned, and the defendant treated her for about a month, and then turned her over to other operators at the infirmary, who treated her for about four months, when they sent her home for a rest. She returned again in February, 1897, and was treated for seven months by said other operators, and was again sent home for a rest. She remained there, on their advice, for about a year, when, at their direction, she returned to Kirksville. The mother told defendant she did not see any use of their treating her daughter any longer, but he said if she would let him treat her for four months longer he thought he could "restore her limb." He treated her for that time, but she got no better. The mother then asked him how he got her in that shape, and said her father had died, and asked him if he would not help her to take care of the child and educate her, and he said he would not treat her another time unless she paid him for it, which she refused to do.

The child has never been able to walk since; her leg is shrunken, and is about four inches shorter than the other, and she has to use crutches, and she stammers when she tries to talk. She was under the treatment of the defendant or said other operators from September, 1895, to April, 1899.

Other witnesses for the plaintiff also testified to the child's condition before the defendant began to treat her and since, and as defendant's statements to her parents that she did not have hip disease, but was suffering from a partial dislocation of the hip. Ollie Merrill, a witness for the plaintiff, and at whose house she boarded, said that the day after the operation the defendant told her that "he had pushed the limb up into the body and made it go whether it wanted to or not."

Dr. McDaniel testified that he was the family physician at Plymouth, Ill., and had known the plaintiff all her life; that he examined her before the defendant treated her in September, 1895, and found her a healthy, well-grown child; that there was a slight stiffness in her right hip, not sufficient, however, to be discovered in her walk, but when she would stoop over one could discover by her motion there was a slight stiffness in her hip; there was no soreness about her hip; she did not shrink from pressure; that he knew her father was afflicted with tuberculosis and scrofula, and concluded the child might develop hip disease; that he saw her again in April or May, 1896, after the operation, and that "she could not walk a step and could not bear the least pressure on or about her right hip unless she manifested great pain"; that her condition was brought about by some other cause than hip disease.

Dr. Aiken testified to the same effect, except he said that when he examined her before the operation "her right leg was the thickness of her shoe longer than the left."

The plaintiff also called as witnesses Dr. C. B. Clapp of Moberly, Mo.; Dr. G. A. Goben of Kirksville, Mo.; Dr. E. S. Quinn of Kirksville, Mo.; and Dr. E. A. Grimm of Kirksville, Mo. They were all regular physicians and surgeons, and graduates of the allopathic school of medicine, and all practice that system, except Dr. Goben, who is a regular graduate of said school, but who said he belonged to no "pathy," but practiced whatever he found to be most beneficial to the patient without regard to what school or system taught it. They are all physicians of good standing and of long existence, and had treated hip diseases and dislocations of the various bones of the human body.

The defendant objected to the testimony of these witnesses on the ground that they were not competent, because they belong to a different school or system from that to which he belongs, and that his treatment can only be judged by members of his special school or system. The court overruled the objections and permitted the witnesses to testify.

The sum of their testimony is that there is a great difference between hip disease and a dislocation of the hip joint; that any competent physician can easily and correctly diagnose a case of hip disease; that there are three stages of the disease; that hip disease is caused by tuberculosis, and may ensue in the child from consumption or scrofula of the parent; that inflammation or pus forms in the hip joint, which manifests itself by soreness and pain when pressure is applied; that "in the early stages there is a slight stiffness, usually some pain, generally crying out at night in the sleep, contraction of the muscles and pain from inflammation, child or person will start from sleep, and some disturbance in the locomotion"; that it usually reveals itself between the ages of 6 and 12; that there is no such thing as partial dislocation of the hip in the early stages of the disease; that after the bony tissue of the head of the femur or the rim of the acetabulum has become destroyed by inflammation, the head of the femur may slip out, or partially out of the cup-shaped acetabulum, but not before; that from the condition of the plaintiff prior to the operation, they are of the opinion that she was in the first stages of hip disease, but that there was no partial dislocation of the hip; that when a patient is treated while in the first stages, the disease may be arrested; that deaths from hip disease range from 7 to 37 per cent. of the cases; that the proper medical treatment is "as complete immobilization of the parts as possible, with extension or contraction of the limb," so as to prevent friction between the head of the femur and the socket in which it rests; that the purpose of the treatment is to permit the bones to ankylose; that is, the head of the femur and the acetabulum to grow together, and to cause them to grow together straight so that the person may be able to use the leg, notwithstanding it may be stiff at the hip; that the disease usually results in a shortening of the leg, of an average of three or four inches, and that in consequence there is a "compensatory curvature of the spine"; that when a patient has hip disease, it is improper treatment to "rotate" or to move the leg or hip joint; that from their examination of the plaintiff and from the history of the case given in evidence, they were of opinion that she was in the first stages of hip disease and did not have partial dislocation of the hip; that her present condition is not the result of hip disease, but of traumatism; that is, an injury resulting from accident or violence to the hip; that she is unable to walk, and that while the hip disease seems to be arrested, or cured, as it is generally called, her leg is turned out at an angle of 45 degrees, instead of being straight, as it should be.

For the purposes of this case this is a sufficient statement of the facts and of the medical expert testimony.

At the close of the plaintiff's case, the defendant demurred to the evidence. Before the court passed on the demurrer, the plaintiff asked leave to introduce evidence to show that the textbooks used in the American School of Osteopathy are the same as used in the other medical schools in Missouri and other medical institutions, and that the osteopaths have no fixed rule of practice for the treatment of hip disease. The court treated the offer as proved, and sustained the demurrer to the evidence, the plaintiff saved an exception and appealed

The case stated in the petition is a diagnosis by the defendant that the plaintiff had partial dislocation of the hip, and not hip disease, treatment by the defendant for partial dislocation, and negligence and unskillfulness in both respects; and the defense is a general denial, an admission that he treated the plaintiff, and an affirmative plea that the plaintiff was afflicted with hip disease and a partial dislocation of the hip

The plaintiff tried the case on the theory that the defendant's diagnosis was incorrect, and that she had hip disease in its primary stage, and did not have partial dislocation of the hip, and that the defendant treated her for partial dislocation; and that such treatment was improper in view of her having hip disease, and that the defendant's treatment was further negligent because it left the leg turned out at an angle of 45 degrees, instead of straight, as it should have been whether treated for dislocation or hip disease

The defendant tried the case on the theory, first, that the plaintiff had hip disease and partial dislocation; and second, that she showed no damage because the same results would have ensued from hip disease, and that the treatment for partial dislocation did no injury

The defendant's chief contention, however, is that he is an osteopath, and that the expert witnesses introduced by the plaintiff belong to different and hostile schools or systems from his, and, therefore, are not competent to give an opinion in the case, but that he must be judged only by the persons of his own school or system, and while the record does not show that the court acted on this theory in sustaining the demurrer to the evidence, counsel seem to agree that this was the chief reason for the ruling

I.

The contention of the defendant that the plaintiff showed no damage because she had hip disease and the same results would have ensued therefrom, and that the treatment for partial dislocation did no injury, is untenable.

If plaintiff had hip disease, it was in the primary stage There was no inflammation or pus or sensitiveness to pressure, and hence no dislocation attributable to that disease, for dislocation resulting from hip disease could not occur until the ravages of the disease had destroyed the head of the femur or the rim of the acetabulum to such an extent that the femur would slip out of its socket, and there is nothing in this case which affords any countenance to any such theory of the case

But whether this was so or not, it needs no expert opinion to show to the common sense of mankind that it could not do hip disease any good to be treated, as the testimony of the lay witnesses shows that the *defendant subjected* the plaintiff to. A diseased hip could not possibly be benefited by giving the ligaments of the hip 'an awful stretch," and forcing the femur into the socket, whether it wanted to go or not, as the lay witnesses say the defendant said he did to the plaintiff's leg It stands to reason that inflammation is not cured or bettered by irritation or by rotating the parts so suddenly and violently as to result in fever and great soreness If the plaintiff had hip disease, it was in the first stages, and therefore she stood a better chance of having the disease arrested or cured, by proper treatment, than she would stand after her hip had been subjected to the violent treatment that the defendant subjected it to It is too plain to admit of argument or serious question, that it does not lie in the defendant's mouth to say that the same results would have ensued from hip disease *even* if he had not treated her as he did It could as well be argued that where a patient is improperly treated for a fracture of a limb and gangrene sets in and the patient dies, that the physician is not liable, because the patient had consumption and would have died any way A patient, however afflicted, is entitled to let nature take its course, and not have even natural consequences precipitated by the improper treatment of the physician, or by an improper diagnosis, and hence the improper treatment applied

II.

The defendant also pleaded that the plaintiff had both hip disease and partial dislocation of the hip joint.

Of course, it is possible that one may have both hip disease and partial dislocation of the hip joint at the same time, and it is also possible that the dislocation may be the result of the advanced stage of the hip disease or from an accidental cause But it is perfectly *manifest* to common sense that if the dislocation was the result of the ravages of the hip disease, which had so destroyed the head of the femur or the rim of the acetabulum so that the femur would slip out of its socket, it could as easily be slipped back again into place without any violence, and that it would be necessary to use some kind of an appliance to keep it in place until the bones ankylosed; and as the defendant did nothing of this kind it must be assumed that he did not intend by his pleading to say that the partial dislocation was the result of the hip disease, but that it was traumatic.

If it was traumatic, it was necessary and proper to reduce the dislocation, whether the patient had hip disease or not, for if it was not done the bones would not grow together straight, and hence the usefulness of the limb would be greatly impaired after the hip disease was arrested or cured On this assumption, the defendant would not have been guilty of any negligence, for the manner of doing it is not an unusual way of reducing such a dislocation, and, in fact, is in effect the only way of doing so; the only practical difference between the way in which the defendant did so, and the use of the pulleys and of the Jarvis adjuster spoken of in Vanhouser vs Borghoff, 90 Mo 1 c 492, is that the defendant used his hands while the pulleys and the Jarvis adjuster are mechanical appliances The purpose of both is the same, to wit, to draw the head of the femur away from the hip socket, so that it will "slip' or '*snap*" back into place

But the gravamen of the plaintiff's case is that the defendant was guilty of malpractice in that he diagnosed her case as a partial dislocation and said she did not have hip disease; and that he treated her for a dislocation when there was no dislocation and hence no necessity or excuse for such treatment

In support of her case the plaintiff introduced lay witnesses who testified to the child's condition before the operation, which condition was such as would appear not to be even a partial dislocation, and to the diagnosis made by the defendant, and his statements and assurances to her parents that she had a partial dislocation and did not have hip disease, and also the testimony of Drs McDaniel and Aiken, who examined her before the operation, as well as afterward, which testimony was admitted without objection, so far as the record shows, and who said she did not have any dislocation of the hip whatever.

This testimony made out a *prima facie* case, which entitled the plaintiff to go to the jury, and cast on the defendant the necessity of overcoming it, and making out his defense. This results without taking into consideration at all the testimony of the plaintiff's expert medical witnesses, whose testimony the defendant objected to

III.

The defendant objected to the testimony of Drs Clapp, Goben, Quinn, and Grim, the medical experts called by the plaintiff, 'because it was not shown that they had any knowledge or information as to the method prescribed, taught or practiced by osteopaths for the treatment of hip joint disease, and because the question as to whether the treatment administered by the defendant was correct or incorrect, must be determined by the rules and methods of osteopaths, and not by the methods or mode of treatment taught and practiced by allopathic physicians" The court overruled the defendant's objection and admitted the testimony, but the court afterward sustained the demurrer to the evidence, and counsel concede that it was for the reason expressed in this objection that the court so ruled, and it must have been for this reason, as there is none other perceivable in the record

The duty and liability of a physician or surgeon to a patient, and what constitutes malpractice, is thus stated in 22 Am & Eng Enc Law (2d Ed) p 789, et seq: "Malpractice is the bad professional treatment of disease, pregnancy or bodily injury, from reprehensible ignorance or carelessness, or with criminal intent.

'A physician, surgeon, dentist or other medical practitioner offering his services to the public as such, impliedly contracts that he *posseses* and will use in the treatment of his patients a reasonable degree of skill and learning, and that he will exercise reasonable care and exert his best judgment to bring about a good result. A failure to perform this contract renders him liable for injuries caused to the patient thereby.

'The standard by which the degree of care, skill and diligence required of physicians and surgeons is to be determined is not the highest order of qualification obtainable, but is the care, skill and diligence which are ordinarily possessed by the average of the members of the profession in good standing in similar localities, regard being also had to the state of medical science at the time

"Unless it is so provided by an express contract, the physician or surgeon does not warrant that he will effect a cure or that he will restore the patient to the same condition in which he was before the necessity for the treatment arose, or that the result of the treatment will be successful."

The same work, at page 801, then says: "The law, in the absence of a special statute, does not give exclusive recognition to any particular school or system of medicine, and the question whether or not a practitioner in his treatment of the case exercised the requisite degree of care, skill and diligence is to be tested by the general rules and principles of the particular school of medicine which he follows, not by other schools

"A school of medicine, to be entitled to recognition under this rule, must have rules and principles of practice for the guidance of all its members, as respects principles, diagnosis and remedies, which each member is supposed to observe in any given case. A class of practitioners who have no fixed principles or formulated rules for the treatment of diseases must be held to the duty of treating patients with the ordinary skill and knowledge of physicians in good standing."

In support of the doctrine of the text the following cases are cited Force vs Gregory, 63 Conn, 167, Ib 36 Am St. Rep. 371; Ib 22 L R A. 343; Bowman vs Woods, 1 Greene (Iowa), 441; Patten vs Wiggin, 51 Me, 594, Ib 81 Am. Dec 593; Hesse vs Knipple, 1 Mich N P. 109; Martin vs Courtney, 75 Minn. 255; Ib 77 N W. Rep 813, Corsi vs Maretzek, 4 E D Smith (N Y.), 1, Williams vs Poppleton, 3 Oregon 139, and Nelson vs. Harrington 72 Wis 791; Ib 7 Am St. Rep. 900.

A short review of those cases is both pertinent and interesting. Force vs Gregory, 63 Conn, 167, was a suit for damages for malpractice in treating plaintiff for ophthalmia The defendant was a homeopathic physician and treated the plaintiff according to the system of that school. There was no question as to the diagnosis of the case. It was simply as to the treatment. The defendant asked the court to instruct the jury, "that treatment by a physician of one particular school is to be tested by the general doctrines of his school, and not by those of other schools." The trial court refused to so instruct, but instead instructed the jury as follows: "In regard to that matter, I will say that the defendant's negligence or *want of skill* in the treatment of the plaintiff's eye must be determined by all of the evidence in the case, and if the defendant adopted the treatment laid down by one particular school of medicine and the medical testimony offered by plaintiff related to treatment prescribed by a different school, you will weigh the testimony, having regard to any *bias* or prejudice that might influence the testimony of those who belonged to a different school from that of the defendant. You should also take into consideration the training and education of the defendant for his profession, the experience which he has had, the degree of skill with which he handled the case, all bearing on the question whether the defendant used ordinary care and skill in the treatment of the plaintiff"

The Supreme Court of Connecticut, quoted with approval, the cases of Patten vs Wiggin, 51 Me, 594, and Bowman vs Woods, 1 Greene (Iowa), 441, and held that the trial court erred in not instructing as the defendant asked, and instructing as it did, and said that "the jury are not to judge by determining which school, in their own view, is the best," and that the bias and prejudice of one school against the other is the very thing that defendant stood in danger of, and that as it appeared that the homeopathic school prescribed certain rules and principles of practice for the guidance of its members in such cases, and as the defendant belonged to that school, he could only be judged by the doctrines of his school and not by those of other schools, and accordingly reversed the judgment of the lower court, which was in plaintiff's favor.

Patten vs. Wiggin, 51 Me., 594, was a suit for professional services. The defense was malpractice. The report of the case does not show to what school of medicine the plaintiff belonged, or whether physicians of any other school testified, nor what the disease of the defendant was, nor whether the malpractice consisted of an improper diagnosis or an improper treatment. It simply shows that the defendant claimed that the plaintiff was guilty of malpractice "in the treatment, and such ignorance, and want of skill and judgment on the part of the plaintiff in managing the case, that the patient was more injured than benefited by his treatment."

The trial court instructed the jury in regard to the general duty and liability of a physician, substantially as hereinbefore quoted from the American and English Encyclopedia of Law, and then added: "If the case is such that no physician of ordinary knowledge or skill would doubt or hesitate, and but one course of treatment would, by such professional men, be suggested, then any other course of treatment might be evidence of a want of ordinary knowledge or skill or care and attention, or exercise of his best judgment, and a physician might be held liable, however high his former reputation. If there are distinct and different schools of practice, as allopathic, or old school, homeopathic, Thompsonian, hydropathic or water cure, and a physician of one of these schools is called in, his treatment is to be tested by the general doctrines of his school, and not by those of other schools. It is to be presumed that both parties so understood it. The jury are not to judge by determining which school, in their own mind, is best." The court also instructed the jury "that in cases where authorities differ, or 'doctors disagree,' the competent physician is only bound to exercise his best judgment in determining which course is, on the whole, best."

The Supreme Court said: "The instructions given were in accordance with well-settled principles of law," and affirmed the judgment in favor of the plaintiff.

Bowman vs. Woods, 1 Greene (Iowa), 441, was a suit for damages for malpractice in a case of accouchement, in that the defendant failed to remove the placenta or to relieve the bladder for thirty-six hours after parturition. The plaintiff showed by the testimony of allopathic physicians that such treatment was improper and liable to result in puerperal fever. The defendant then offered to prove that he was a botanical physician, and that according to the botanical system of practice and medicine, it is considered improper to remove the placenta, and that it should be permitted to remain until expelled by the efforts of nature. The trial court excluded the testimony so offered. The Supreme Court held that no particular system of medicine is established or favored by the laws of Iowa, "and as no system is upheld, none is prohibited; that the regular, the botanic, the homeopathic, the hydropathic and other modes of treating diseases are alike unprohibited," and that "a person professing to follow one system or medical treatment can not be expected by his employer to practice another. . . . Therefore, if in this case the defendant below could show that he was employed as a botanic physician, and that he performed the accouchement with ordinary skill and care, in accordance with the system he professed to follow, we should regard it as a legal defense." Accordingly, a judgment in favor of the plaintiff was reversed.

Martin vs. Courtney, 75 Minn. 255, was a suit for malpractice against an allopathic physician and surgeon, in the amputation and subsequent treatment of the plaintiff's husband's toes, which had been crushed by accident. A second amputation was found necessary, and the sole point was whether it should have been of an additional quarter of an inch of the foot or of the whole foot at the ankle. Another allopathic physician testified that the defendant had acted properly. But the plaintiff called a homeopathic physician and asked his opinion as to whether the treatment was proper. On objection being made to this the witness testified that there is a decided difference between the rules and principles of the two schools as respects "the practice of medicine," but not as respects surgery; that there was no difference between the two schools as to the treatment of sepsis connected with surgery, but there was a difference where the sepsis has produced a diseased condition, for then it became a question of disease and not of surgery, and the treatment of the two schools would be entirely different. The defendant offered to prove that the two schools are hostile to each other in their rules of treatment of sepsis, even in cases connected with surgery. The trial court excluded the evidence offered by the defendant, and permitted the homeopathic physician to testify. The Supreme Court held this to be error, and that a physician must be judged by the rules and principles of medicine of the school to which he belongs and not by those of any other school, and accordingly reversed a judgment in favor of the plaintiff.

Corsi vs. Maretzek, 4 E. D. Smith (N. Y.), 1, was a suit by an opera singer against the director of the opera for two weeks' salary. The defense was that the plaintiff failed to appear at an entertainment, and that his contract provided that in such event he should forfeit a month's salary unless he was prevented by sickness, which had to be proved by a doctor appointed by the director, and that the director had appointed such doctor, but that the plaintiff did not prove his sickness by him. The defendant proved by an allopathic doctor that he was sick, and claimed that the doctor appointed by the director was a homeopath, and contended that a homeopath was no doctor at all. The plaintiff recovered in the lower court, and the defendant appealed to the Court of Common Pleas of the city and county of New York. The decision of the latter court is quite interesting as a review of the origin and development of the science of medicine, and holds that a homeopath is a doctor, but decision does not throw any light on the case at bar.

Williams vs. Poppleton, 3 Oregon 139, was a suit for damages for malpractice in the treatment of plaintiff's fractured ankle. The only point in the case which at all bears on this case is that the court held that, "if the treatment is according to a recognized system of surgery, it is not for the court or jury to undertake to determine whether that system is the best among the many that may be adopted by different branches of the medical profession. It is sufficient if the practitioner follow any of the known and recognized systems."

Hesse vs. Knipple, 1 Mich., N. P. 109, was an action for damages for malpractice. It is a charge to the jury by a *nisi prius* judge, and contains nothing that is pertinent to the question here under discussion.

Nelson vs. Harrington, 72 Wis., 591, was a suit for malpractice. The defendant was a clairvoyant, and claimed to diagnose and treat diseases, by going into a trance, and while in that state to receive information as to the character and proper mode of treating the disease. The court held that allopathic physicians were competent, in such case, to give an opinion as to the correctness of the diagnosis and treatment. The decision also holds, as the rule is hereinbefore stated, that to constitute a school of medicine it must have rules and principles of practice for the guidance of all its members as respects principles, diagnosis and remedies, which each member is supposed to observe. That case is cited and quoted from approvingly by Burgess, J., in Longan vs. Weltmar, 79 S. W. Rep., I. C. 658, to which reference will hereafter be made.

This is the state of adjudication in other jurisdictions. It is to the credit of the gentlemen of the medical profession in this state that very few cases of this character have heretofore reached this court. The first case reported is West vs. Martin, 31 Mo., 375. It was a suit for damages for malpractice. This court, per Ewing, J., said: "Whether errors of judgment will or will not make a surgeon liable in a given case depends not merely on the fact that he may be ordinarily skillful as such, but whether he has treated the case skillfully or has exercised in its ordinary treatment such reasonable skill and diligence as is ordinarily exercised in his profession. For there may be responsibility where there is no neglect, if the error of judgment be so gross as to be inconsistent with the use of that degree of skill that it is the duty of every surgeon to bring to the treatment of a case according to the standard indicated." That case did not involve the question now under consideration.

Vanhouser vs. Berghoff, 90 Mo., 487, was a suit for damages for malpractice in not using proper appliances to hold the limb in place after a dislocation of the hip had been reduced. Prior to the treatment by the defendant the plaintiff had been treated by other doctors, of the same school of medicine with the defendant, who had tried to reduce the dislocation by "manipulation," and had failed. The defendant also tried to reduce it by "manipulation" and failed, and then he used pulleys and the Jarvis adjuster to extend the limb so as to permit the head of the femur to "snap" into the socket. There was no question about the diagnosis being correct, nor as to the use of the pulley and Jarvis adjuster, but the whole question was as to whether the defendant used proper appliances to keep it in place. It slipped out of place after the first operation, and a second operation was necessary. There was no question as to the different schools of medicine, as all the experts belonged to the same school of medicine with the defendant.

Wheeler vs. Bowles, 163 Mo., 398, was an action for malpractice in reducing a dislocation of the shoulder. The instructions given stated the general rule as to the duty and liability of physicians and surgeons, which this court quoted and approved. The case did not involve any difference of schools of medicine, as the experts all belonged to the same school with defendant.

Longan vs. Weltmar, 79 S. W. Rep., 655, was a suit for damages for malpractice. The defendant claimed to be a "magnetic healer," who healed by a power which he alone possessed. He did not belong to any school of medicine. He objected to the competency of physicians of the allopathic school. He treated the plaintiff for some derangement of the stomach, by placing the plaintiff on her back on a padded table, and then put one hand on her stomach and the other hand under her knees, and bent her so that her knees touched her breast. He then placed her on her stomach on the padded table and put his left hand on the small of her back over her spine, and his right under her knees and bent her legs up until she screamed with pain. This treatment resulted in the ligaments connecting the backbone and hipbone being ruptured and torn and the back and spine and pelvic organs being permanently injured.

This court quoted approvingly the decision of the Supreme Court of Wisconsin, in Nelson vs. Harrington, 75 Wis., 591, and in speaking of the medical expert testimony said: "While it is true that the physicians who testified on the part of the plaintiff did not claim or pretend to know anything about the practice of magnetic healing, they were nevertheless competent, from education and experience, to testify whether the treatment which plaintiff underwent was proper in any case, and especially in her condition. Simply because a person claims or pretends to possess certain powers of healing peculiar to himself is no reason why other persons, who do not claim such powers, but who have knowledge acquired from education and practice, are not competent to judge whether the treatment administered was negligently or carelessly done. Otherwise, any non-professional person might undertake to treat a certain disorder, and (if defendant's position be correct in law) it mattering not how carelessly or negligently his acts were performed, because, forsooth, no one could be found of the same pretensions to testify with respect to such treatment, the injured person would be without remedy. The contention, we think, is untenable."

From the foregoing it will be seen that while the prior decisions of this court state the general rules as to the liability and duties of physicians and surgeons, substantially as they obtain in other jurisdictions, the precise question here involved has not undergone adjudications by this court. The case is, therefore, one of the first impression in this state, and its importance is a sufficient excuse for the length of this opinion.

At the outset of the discussion it is important and essential to note the provisions of the statutes of this state which bear on the question.

Chapter 128, R. S., 1899, relates to medicine, surgery and dentistry. Article 1 of that chapter (Sec. 8507) provides: "Every person practicing medicine and surgery, in any of their departments, shall possess the qualifications required by this article." In brief, the qualifications are that the person shall be a graduate of some legally chartered medical institution in good standing, of whatever school of medicine, and the person exhibiting the same shall be licensed to practice by the State Board of Health, which board is prohibited from discriminating against the holders of any diploma or license under any system or school of medicine.

If not such a graduate, the person must stand an examination before the said board.

Article LV of said chapter relates to osteopathy. Section 8537 prescribes that "the system, method or science of treating diseases of the human body, commonly known as osteopathy, and as taught and practiced by the American School of Osteopathy of Kirksville, Mo., is hereby declared not to be the practice of medicine and surgery within the meaning of Article I of this chapter, and not subject to the provisions of said article."

Section 8538 of said Article IV is as follows: "Any person having a diploma regularly issued by the American School of Osteopathy of Kirksville, Mo., or any other legally chartered and regularly conducted school of osteopathy, who shall have been in personal attendance as a student in such school for at least four terms of not less than five months each before graduation, shall be authorized to treat diseases of the human body according to such system, after having filed such diploma with the clerk of the county court of the county in which such person proposes to practice; and having filed with such clerk an affidavit that the diploma is genuine, and that he or she is the person to whom the diploma was issued and that all the provisions of the article were fully complied with before the issuing of such diploma; whereon the clerk shall record such diploma in a book to be provided by him for that purpose, and shall endorse on such diploma the date of filing and recording the same, for which he shall receive from such person a fee of one dollar."

Section 8539 of said article makes it a misdemeanor for any person to practice or use the system, method or science or osteopathy in treating diseases of the human body without having complied with said article. But said section concludes as follows: "*Provided*, That nothing of this article shall be construed as prohibiting any legally authorized practitioner of medicine or surgery in this state from curing or relieving disease, with or without drugs, or by any manipulation by which any disease may be cured or alleviated."

It will thus be observed that the position of osteopaths in this state is not only anomalous, but that it is *sui generis*. Anomalous because while it is spoken of as a system, method or science, it is yet declared not to be the practice of medicine and surgery in any of its departments. And *sui generis*, because osteopaths are not subjected to the jurisdiction of the State Board of Health, as all other practitioners of medicine and surgery in any of its departments are. Yet any legally authorized practitioner of medicine and surgery is expressly permitted to cure or to relieve diseases, with or without drugs or by any manipulation by which any disease may be cured or alleviated.

In other words, osteopaths are not physicians or surgeons in any of the departments of medicine or surgery, but may cure or relieve any disease of the human body according to the system, method or science as taught by the American School of Osteopathy of Kirksville, Mo., or any other legally chartered and regularly conducted school of osteopathy.

Neither the statute nor the record in this case shows what such system, method or science is. The plaintiff offered to prove that they use the same text-books as other schools of medicine, and also that they have no fixed rule of practice for the treatment of hip-joint disease, and for the purpose of the case the trial court ruled that such facts might be considered as proved.

On their face these two things seem to be inconsistent, for if osteopaths teach the same text-books as other schools of medicine and surgery, it can not be true that they have no fixed rule of practice for the treatment of hip disease, because such text-books of other schools of medicine and surgery prescribe rules for the treatment of hip-joint disease, as the testimony in this case clearly shows.

If it be true that osteopaths teach the same text-books as other schools of medicine, then there can be no reason why a physician of any other school is not a competent witness to express an opinion as to the correctness of the diagnosis and treatment of hip disease by an osteopath, because *pro hac vice* the rules and practices of both are the same.

On the other hand, if osteopaths have no fixed rule of practice for the treatment of hip disease, which all must adhere to, then they do not constitute a school of medicine and fall in the category spoken of in Nelson vs. Harrington, 75 Wis., 591, and Longan vs. Weltmar, 79 S. W. Rep., 635, and regular practitioners of medicine and surgery are competent witnesses, and it may be safely assumed that osteopaths would not willingly be so classed, nor is it fair to so class them without more satisfactory evidence than is disclosed by this record.

It is said that allopaths are "antis" and homeopaths are "similias," but that osteopaths are neither. This may be true, but the terms relate rather to the treatment or remedies employed to cure disease than to the diagnosis of the disease. The disease is the same no matter which school of medicine the attending physician belongs to. And, judging by the examination of the witnesses in this case and by the theories on which both parties tried this case, hip disease is ascribed to the same causes, and the diagnosis of the case is the same, by both osteopaths and physicians and surgeons of every other school of medicine. They may differ as to the proper treatment of the disease after its presence is ascertained, but there is no difference as to diagnosis. And the same is true as to dislocations.

This being so, there is no sound reason why a physician of any school should not be a competent witness to testify whether a patient has hip disease, dislocation or as to any diagnosis of any disease. The bias or prejudice of one school of medicine against another can not affect the question of the diagnosis, however much it might affect the treatment employed by the other school.

At least this is the common sense of the matter, and is the only conclusion that is fairly deducible from the testimony in this case and from the theories on which both parties tried this case, and from the offer of proof made and treated as proved at the close of the plaintiff's case.

It therefore follows that the expert medical witnesses offered by the plaintiff were competent to express an opinion as to the diagnosis that was made by the defendant of the plaintiff's trouble, as related by the law witnesses, to-wit, that she had partial dislocation of the hip joint and did not have hip disease, and also competent to testify as to any scientific fact that is or ought to be known to every physician and surgeon of every school or system, but they were not competent to express an opinion as to the treatment of the plaintiff by the defendant unless it should appear that both the schools to which the witnesses and the defendant belonged employed the same treatment.

This seems the safest rule to adopt in such cases and the one least liable to cause injury or injustice to either party. It must be borne in mind, however, that only the plaintiff's side of this case is before the court, and that the defendant has not shown his side of it, except as his cross-examination of the plaintiff's witnesses indicates it.

For these reasons the judgment of the Circuit Court is reversed and the cause remanded to be tried in accordance herewith. All concur.
W. C. Marshall, Judge.

PROPRIETARY REMEDIES.

Some Comments on the Creation of the Council on Pharmacy and Chemistry.

We quote the following from some of our exchanges:

The *Boston Medical and Surgical Journal* says: "A movement which should be most valuable in its results has been started by the American Medical Association. . . . The plan outlined must meet with the general approval not only of the medical profession, but also of manufacturing pharmacists and chemists who are striving to live up to their professions in serving the public. It has long been evident that many preparations of distinct value in medical practice are now on the market and are being extensively used by reputable physicians, which, for obvious reasons, have found no place in the Pharmacopeia. It is also true that many preparations are before the public which, for one or another reason, do not deserve confidence. There should certainly be some authoritative board which will decide, so far as possible, the question of the legitimacy of preparations, a matter which is clearly quite beyond the power of the individual physician to determine. That the work before the council will demand much tact and judgment is evident. For this very reason it is the more needed. . . . The names of . . . many . . . members of the council insure a conscientious and scientific investigation of the claims of the various medicinal productions. Beyond the inherent difficulties of the task which this council has undertaken we can conceive of no possible objection to the plan, and on the other hand can see in it a very distinct advantage to the profession at large."

American Medicine says: "It . . . must interest every medical journal and, indeed, every physician in the United States. The Journal of the Association, with its immense resources, as well as by its function as the official organ of the largest medical organization, is fitted for and is capable of undertaking the task which, by reason of those same qualifications, becomes in a way its duty. . . . The need of a book of this character can not be questioned. It is demanded in the interest of honest pharmacy and chemistry, but, above all, by physicians who need a work to which to refer for information regarding the character, reliability, etc., of the various preparations mentioned in medical literature, and brought to their attention in various ways, as well as to assist them in separating the secret nostrums from preparations which are honestly made and ethically exploited, and which are worthy of their recognition. One of the points chiefly to be commended as to the plan is that it encourages the ethical preparations in an indirect but still positive manner, while its disapproval of the unethical is purely negative. It simply does not accept. With the decisions of the council motived on strictly professional considerations, the way is at least prepared for a final solution of the old and tormenting problem of the stand as to nostrums and proprietaries. Therapeutics does not enter into the concern of the council, so that there will still remain a part, though we believe a small part, of the ancient difficulty—that with the secret remedy which may have some special therapeutic value. The limitation of the time in which a copyrighted name and secret formula may be legally allowed will lessen this somewhat remote scandal."

The *New York Medical Journal* remarks: "The ten rules which have been formulated for the guidance of the council, . . . in so far as any rule can be formulated for the distinction of objectionable from non-objectionable preparations, seem to us to be quite satisfactory. The composition of the council is one which gives assurance of really expert and sane advice; but even with the best intention and with the most expert administration, the establishment of such a censorship is likely to prove a source of serious contention, and will undoubtedly involve the association in trouble of a kind that it has been heretofore free from."

Protracted Menstruation.—Gelli of Florence, Italy, reports in the *Bollettino di Ost. e Gin.*, a case of apparently normal menstruation continued to the age of 76. The subject was a robust working woman, and the physician, summoned for an acute liver colic, found that the uterus contained a fibroma the size of a fist.

Ovarian Tumors During Pregnancy.—G. Guicciardi, of Florence, reports in *Ginecologia*, I, No. 9, 1904, eight cases of ovarian tumors removed during pregnancy or labor. The results confirm the great advantages of prompt operation in such cases, preferably during the second to the fourth month, avoiding merely the dates of the suppressed menses.

Rupia.—Syphiloderma bullosa is characterized by circinate coalescent groups of blebs, breaking in a day or so; coppery discoloration and thick, brown-green, adherent, imbricated "oystershell" crusts over irregular ulcers, occurring in the late stage of acquired syphilis in broken-down subjects or in early hereditary syphilis. The main point in treatment is to push the iodids—large doses in plenty of water after meals.—*Denver Medical Times.*

Cancerous Degeneration of Stump After Amputation of Cervix.—E. Pestalozza of Florence, adds 5 to the 14 cases collected by Richelot in which an epithelioma had developed on the stump of the cervix after partial hysterectomy. The list includes 3 personally observed. He states editorially in *Ginecologia*, I, No. 21, 1904, that the Italians now make a practice of the total operation—other things being equal—when there is any family history indicating a tendency to malignant neoplasms. Otherwise the incomplete operation is preferred.

The responsibility for the quack medicine abuse lies very largely with the druggist. Until physicians recognize the absurdity of sending prescriptions to druggists who are systematically engaged in cutting the doctors' throats through the sale of quack medicines, and take some concerted action to end that abuse, people of even average ordinary abilities will continue to go to drug stores and buy fake cures for self-administration. There may be an excuse for the country grocery store offering for sale the cough cures which are advertised along the highways, but the pharmacist who compounds the doctor's prescription should see the propriety of not working against the doctor's interest.—*Monthly Cyclopedia of Pract. Med.*

Passive Palpation of the Stomach.—Giuffrè of Naples has recenty called attention in the *Morgagni*, July, 1904, to a means of outlining the stomach which may be of service when other means of diagnosis are not available or need confirmation. The subject reclines or, better still, lies with the head a little lower than the rest of the body, after drinking a little water, not more than 100 gm. The physician places his hand on the stomach region and asks the subject to stop breathing, during a deep inspiration, and to contract his diaphragm or the abdominal muscles alternately. This forces the water in the stomach forward or backward, and the passively palpating hand can readily perceive the impact of the water and can note the point where it stops, which is the outline of the stomach.

The Value of Medical Training.—Sir Conan Doyle, who studied and practiced medicine before he made literary work his vocation, states there was a time when a course in law was a part of the routine education of many young men who were planning to enter special fields of work. He says: "I believe the time will come when the similar young man will be passed through medicine, because I know no other means by which he could get to the fundamental and absolute facts of life. The mere fact that in his training a man has to undergo so searching an ordeal in the most critical years of his life, and to pay such enormous attention to detail, is in itself evidence that he receives a splendid training. I have always said that for a man who has mastered 'Gray's Anatomy' life has no future terrors."

The Probability of Error.—An interesting computation of the possibility of error was brought out by Branwell in the *Medical Chronicle*. He calculated that the numerical odds against the probability of a certain will being made without proper understanding on the part of the patient were 1,072,000,000 to 1. A woman aged 75, suffering from aphasia and right side hemiplegia, made a will by nodding her head and squeezing the hand of the lawyer in reply to questions. Five names of persons were mentioned three different times, the order of the names being reversed and altered. The woman specified the same beneficiaries in each test, and by taking into consideration the possibility of computing the chance of her giving no answer or the wrong answer, etc., Branwell concluded that the odds against her having given the same answers in the three tests by pure chance were 1,072,000,000 to 1.

Newspaper Comment as a Professional Stimulus.—We read that in a certain town in Illinois a discussion has arisen regarding the mention in newspaper reports of the name of the attending physician of an accident case. One physician is quoted as saying that the statement in a newspaper of the name of the surgeon involved "would spur him on to greater efforts to secure the complete recovery of his patient." We always hesitate to comment on newspaper quotations of the alleged statements of physicians; but if any member of our profession made the foregoing remark he should instantly matriculate into some profession or business where the lack of journalistic comment, which is so stimulating to him, would not necessarily imperil the lives of others. The remarks exhibit a mental attitude that we can not harmonize with our concept of any physician, however unfit.—*N. Y. Med. Jour.*

An Increase of Medical Students.—The question may be pertinently asked if organized medicine under the leadership of the American Medical Association should not discourage prospective students from entering the medical field. Even if no recommendation is made, would it not be well for the authoritative medical body to tell prospective medical students that there is practically no demand for their services, that the field is already overcrowded, and that the prospect of obtaining a livelihood by the legitimate practice of medicine is becoming poorer every year and in a short time will reach the vanishing point? This step has been taken in Germany, a pamphlet having been issued for the purpose of persuading those who are about to come up for their final examination in the high school to avoid a medical career. Since 1876 the number of physicians in Germany has more than doubled, and it has become almost impossible for many of them to make even a simple living from the practice of their profession.—*Medicine.*

Lucid Brevity.—In his inaugural address the new president of the Academy of Medicine used the words "lucid brevity" as describing the characteristics he particularly wished to see in the communications laid before that body. "Never," writes an ex-president of the academy "were two words more aptly put together. Would that they might be woven into the web of all medical discourse, and water-marked on every page of medical writing! Verbosity is the plague of scientific discussion. It may arise from inability to think clearly, but quite as often it results from inability of the speaker or writer to lose himself in his subject. Certain tricks of verbiage find their usefulness in making and keeping the author's personality as vivid to the listener or to the reader as it is to himself. Let us hope that Dr. Dana, as presiding officer, will have the hardihood to make such use of the gavel, in extreme cases, as will secure a measure of brevity whether 'lucid' or not. If he does this, he will add greatly to the interest of the proceedings."—*Medical Record.*

Eat to Live, or Live to Eat?—Man should live one hundred years, barring hereditary frailties, said Dr. J. J. Mulheron, Detroit, before a lay audience. The life of a lower animal is five times as long as its period of growth. For instance, the horse attains his full growth in four years and lives twenty years; the elephant in twenty years and lives one hundred years. Overeating is one of the chief causes of early death. A person who has attained the age of twenty five years should not indulge in three full meals a day. "The human body normally starts out freighted for one hundred years, and it is man's own violation of the laws of nature that causes premature death. I do not believe that disease is ordained of God. When man learns to obey nature, then he will pass away at the end of his century like the famous one-horse shay. The Roman Catholic Church prescribes rules of fasting during lent. It allows one full meal and two light repasts each day. That the hygiene is excellent is beyond dispute, and the only quarrel we physicians have about the matter is, that the rule affects but one church, and that for only six weeks in the year.

Reflex Paresis Originating in Ear.—A. Pugnat of Geneva describes, in the *Revue Hebd. de Laryngologie*, xxv, No. 49, 1904, a case of otitis distinguished by disturbances in speech and writing. Reflex paralysis and paresis of the limbs in cases of ear affections have been reported by Urbantschitsch this year and last. These disturbances are liable to accompany any ear affection, but especially otitis media, and generally on the side affected. They may subside early or may persist indefinitely, and the intensity of the paralysis and paresis is by no means always commensurate with the severity of the ear trouble, some instances of severe paralysis having been observed with a slight catarrhal affection of the middle ear. Tamponing of the middle ear has been known to affect the writing, some subjects not being able to write at all immediately afterward. The reflex paresis in the laryngeal muscles causes phonetic disturbances. In the case described all these troubles were associated, accompanying an acute catarrhal otitis. The subject was a young woman, the otitis following the grip. The auricular origin was manifest and confirmed by the subsidence under treatment of the ear affection, of the paretic symptoms and of the modifications in voice, handwriting and other uses of the hand.

Feeding at the Public Crib.—"The annual raid on the public treasury by the private charitable institutions of Pennsylvania is now in progress," says the editor of *American Medicine*. "Would the 'visitor from Mars' believe when told that nearly 200 of these institutions have applied for their share of the $15,000,000 of the taxpayers' money, and that 175 of them have had their prayer granted by the State Board of Charities, which recommends that nearly $10,000,000 be parceled out among them? As regards those few institutions owned and controlled by the state, there is of course no question, but as to the others there is little or no genuine government control and no just or judicial discrimination as to service rendered or real desert. What part private and personal interest indirectly plays in all this, and what portion is motived by corrupt greed and 'division of the spoils' by a boss-governed and ring-ruled travesty of 'statesmanship,' none may hazard an exact estimate. Many of the most deserving charities, and those performing the highest and best service to the community, can not bring themselves to apply, and would probably be refused if they should do so. Many others are ruled by the consideration that if they do not put in their applications the money will go to far less worthy institutions, and so each year the mad race goes on from bad to worse. And the mouths of thousands of institutional trustees and administrators are padlocked as regards the political rottenness of city and state legislation and government. The appropriation to their institutions would at once be stopped by the 'machine' should a hint of criticism or reform be ventured."

The Bitter Tonics and Strychnin.—It has been found that the older theory as to the action of bitter tonics is not reliable. In cases of hyperchlorhydria, it is true, they are likely to do harm by stimulating the secretion of still more acid, in accordance with theory. But, in cases of subacidity, in which their hypothetic stimulating action is just what is desired, it has been learned that they can not be depended on. When we consider, in addition, that the decision as to excess or deficiency of hydrochloric acid according to the symptoms presented and without scientific examination, is likely to be in error, it will be seen that the therapeutic effect of the simple bitters, as ordinarily prescribed, is a very uncertain one. For some years we have relied almost exclusively on strychnin to stimulate the secretory and motor power of the stomach, although it must not be supposed that this drug is entirely satisfactory or capable of replacing other more local measures. A very puzzling group of cases is that in which, with relaxation of the cardia and without the presence of a sacculated or prolapsed stomach, the food does not pass out of the stomach at the proper time. Here we must ask—and often without being able to answer our question—is the delay due to spasm of the pylorus or asthenia of the gastric muscle generally? In another group of cases, with weak circulation and general depression of strength, there is spasm of the pylorus or cardia, or of the whole gastric musculature. In these cases it is difficult to balance the apparent indication for and contraindication toward strychnin, and we must have recourse to empiricism.—*Medical Herald.*

The Real Problem of Science.—*Public Opinion* remarks, "The grouping of facts is one thing, but generalization from the facts splendidly complements the work of observation. But the work of observation and the work of generalization are disparate. The perplexing situation is directly brought out in the year-book of the Carnegie Institution, which contains, among other recommendations, one by Dr. Simon Newcomb that an institute be established for the promotion of 'research in the exact sciences' by more exact and economical methods than are at present possible. It is something of a shock to the layman to find in the letters that certain eminent scientists have written in regard to Dr. Newcomb's plan, frank admissions of the inaccuracy and irrelevancy of much scientific investigation. The weeding out of the irrelevant and the correction of the inaccurate is a work concerning the satisfactory accomplishment of which some of the eminent critics are very dubious. Prof. Karl Pearson especially points out the difficulties of generalizing from the facts gathered by routine investigators. At the same time the wide-viewed generalizer can too seldom be depended on as a safe assembler of facts. This condition creates the real problem of science—which is not merely how to gather facts, but how to make them useful."

Medical Corruption.—We have to deal with graft in the medical profession and let us see to it that it is even more energetically dealt with than is being done with graft in public life. The surgeons and specialists in high places who indulge in graft by offering other physicians bribes in the form of commissions for patients sent to them, as well as physicians who accept these bribes, should be exposed and denounced by the honest men of the profession. The grafters who write high sounding but meaningless praises of secret nostrums, the manufacturers of which promise returns, are also deserving of our serious attention. The man who advertises his operations and practice by newspaper interviews on the faintest pretext or on no pretext at all, is guilty of graft, and no effort should be spared to show him the evil of his ways, or to expose him. The medical hypocrite whose religion may be covered by a postage stamp but whose character is still smaller than his religion, exercises graft when he works the church for practice to the disadvantage of his more scrupulous and less grafty brother. The cheap medical college whose only excuse for existence is the advertisement of its faculty, and which has nothing of value to offer to the student but the promise of an easy and shortened course, and farcical examinations, is one of the most pernicious forms of medical graft and one which the profession should discourage at every opportunity. The red-light-machine-made specialist who surrounds himself with senseless but gaudy and impressive machinery for the purpose of catching the support of the unwary general practitioner and impressing the public, is indulging in a species of graft which has made many of this class successful business men but poor physicians. Most of us recognize graft when we see it, particularly medical graft. Let us carefully label it as opportunity arises and assign it to its proper place, i. e., beyond the pale of professional countenance—in the realm of quackery and charlatanism.—*Wisconsin Medical Recorder*.

State Boards of Registration.

COMING EXAMINATIONS.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Central District Board of Medical Examiners for the Indian Territory, South McAlester, April 3, 1905. Secretary, B. W. Caldwell, M.D., Hugo.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Illinois January Report.—Dr. J. A. Egan, secretary of the State Board of Health of Illinois, reports the written examination held at Chicago, Jan. 19-21, 1905. The number of subjects examined in was 19; total number of questions asked was 100; percentage required to pass, 75. The total number of persons examined was 45, of whom 34 passed, 5 failed, and certificates of 6 were held pending presentation of diploma. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
American College of Medicine and Surgery, Chicago.	(1904)	90
American Med. Miss. Coll., Chicago....(1901) 82,	(1904)	84
Barnes Med. Coll., St. Louis	(1904)	79
College of P. and S., Boston	(1901)	77
College of P. and S., Chicago......(1903) 78, 83;	(1904)	87, 94
College of P. and S., Minneapolis	(1902)	79
Detroit Coll. of Med	(1897)	80
Harvard University..............(1901) 84,	(1903)	84
Hering Med. Coll., Chicago	(1904)	79
Illinois Med. Coll.................(1904) 86,	(1905)	81
Marion Sims-Beaumont	(1904)	75
McGill University, Montreal	(1903)	88, 95
Medical College of Indiana	(1904)	82
Northwestern University	(1904)	87, 90
National Med. Univ., Chicago.........(1903) 77,	(1904)	76
Rush Med. Coll., (1901) 83, (1904) 90, 87, 87, 82, 86, 92, 87,		89
University of Toronto	(1904)	83

FAILED.

College.	Year Grad.	Per Cent.
Coll. of Med. and Surg., Chicago	(1905)	75
College of P. and S., St. Louis	(1904)	52
Jenner Med. Coll., Chicago	(1904)	56
College of P. and S., Keokuk	(1900)	63
University of Wooster, Cleveland	(1882)	72

Washington January Report.—Dr. C. W. Sharples, secretary of the Washington State Medical Examining Board, reports the written examination held at Spokane, January 3-5, 1905. The number of subjects examined in was 16; number of questions asked, 130; percentage required to pass, 75; for graduates of ten years' standing, 70. The total number of persons examined was 81, 64 of whom passed and 17 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
College of P. & S., Baltimore	(1896)	88.9
University of Tennessee	(1889)	70
Jefferson Med. Coll................(1902) 80.5,	(1904)	79.8
University of Virginia	(1903)	85.6
Sioux City Med. Coll	(1903)	82.4
Eclectic Med. Institute (Kentucky)	(1900)	77.3
Edinburgh University..............(1876) 73.2	(1903)	83.6
University of Pennsylvania	(1903)	90.35, 85.3, 82.2
University Med. Coll., Kansas City	(1903)	77.4
Harvard University..................(1893) 79,	(1902)	89.5
Buffalo University	(1900)	80.4
Ohio Medical University	(1903)	87.2
University of Iowa	(1903)	78.0
Baltimore Med. Coll	(1903)	75
Coll. of P. and S., Keokuk	(1899)	81.9
University of Michigan (1891) 87.2, (1895) 86.7, 75.3, (1896) 87.5, (1898) 90.5, (1899) 82.7, 90.3, (1902) 84.5, (1903) 82.6, 87.2, (1904) 87.2.		
Rush Medical College	(1890)	76
Paris..............................(1877) 75,	(1900)	76.4
College of P. & S., Cleveland	(1902)	83
Tufts College Med. School	(1902)	79
Cooper Med. Coll	(1904)	77, 81, 90.2
University of Leipzig	(1887)	78
Univ. and Bellevue Hosp. Med. Coll	(1904)	87
Washington University, St. Louis	(1902)	80.9
College of P. & S., San Francisco (1901) 71, (1902) 84.7, (1904) 84.5		
University of Minnesota (1897) 80.3, (1900) 76.4, (1902) 83.4, (1903) 85		
College of P. & S., Chicago (1893) 81, (1902) 76.5, (1903) 84, (1904) 75.3, 77.6, 77.7.		
Northwestern University...........(1901) 90.5,	(1903)	78.4
Northwestern Univ. Woman's Med. Coll. (1895) 71.2,	(1897)	76.4
National University	*(1903)*	77, 86.9
University of Vermont	(1904)	87.5
Columbia University	(1902)	86
University of Toronto	(1904)	82.3

FAILED.

College.	Year Grad.	Per Cent.
College of P. & S., St. Louis	(1892)	57.1
Ensworth Medical College	(1904)	70.7
Louisville Medical College	(1904)	58
Kansas City Medical College	(1898)	65.5
California Medical College	(1902)	71
Detroit College of Medicine	(1898)	60.7
Rush Medical College	(1890)	68
University of Michigan.............(1879) 62,	(1883)	66.4
Chattanooga Medical College	(1904)	71.6
Physio-Medical Coll. of Indiana	(1893)	64.4
Kentucky School of Medicine........(1882) 39,	(1903)	73.5
Maryland Medical College	(1904)	64
Bennett Medical College	(1893)	68
Northwestern University	(1899)	74
University of Iowa	(1880)	59.1

The following questions were asked:

MEDICAL JURISPRUDENCE.

1. In the absence of a magistrate, how would you obtain a dying declaration that would be admissible in court? 2. How would you differentiate between a homicidal and a suicidal death? 3. How would you determine whether or not death was due to the inhalation of illuminating gas? 4. In a robust subject when death is due to violence, how long after death does rigor mortis appear? Give its duration. Give the regular order of its onset and disappearance. 5. How would you determine the identity of a body?

DISEASES OF CHILDREN.

1. Give etiology, symptoms, prognosis and treatment of infantile scorbutus. 2. Diagnose a case of simple acute adenitis and give treatment. 3. Give general directions for the care and treatment of cholera infantum. 4. Give symptoms, prognosis and treatment of thrush. 5. Give general directions for a nurse to follow in a case of scarlet fever. 6. Describe chorea and give treatment for same. 7. Give sequelæ of scarlet fever, measles and diphtheria. 8. Give symptoms, course and duration of capillary bronchitis and give the appropriate treatment for same. 9. Give symptoms, diagnosis and prognosis of cerebrospinal meningitis. 10. Differentiate the eruption of scarlet fever and measles.

OBSTETRICS.

1. Give general hygiene and management of pregnancy. 2. Give the management of normal labor. 3. Discuss nephritis as a complication of pregnancy. 4. Give the management of a breech presentation. What are the dangers to the mother and child? 5. In a face presentation, mento-posterior position, give the mechanism of delivery. 6. Give the management of placenta previa. 7. Give the dangers and treatment of a prolapsus of the cord. 8. Give the causes and treatment of postpartum hemorrhage. 9. Give the causes and treatment of puerperal infection. 10. Give the causes and treatment of mastitis.

PREVENTIVE MEDICINES.

1. During an epidemic of enteric fever, what prophylactic rules would you give your patients? 2. Describe in detail your prophylactic treatment and management of diphtheria occurring in a family where there are several children. How long should such measures be continued? 3. Describe municipal quarantine of a seaport city. 4. What gas is most used in disinfecting a room? Give one method in detail. 5. To what extent should quarantine and other prophylactic measures be carried in tuberculosis?

DISEASES OF WOMEN.

1. Enumerate the various disorders of menstruation. 2. Give the various malpositions of the uterus and your treatment of a retroflexion. 3. Name the more common diseases of the body of the uterus and give your method of treatment for subinvolution. 4. Give the signs, symptoms and diagnosis of ectopic gestation. When would you operate? Why? 5. Name the more common diseases of the ovaries. 6. Give the differential diagnosis between chronic oöphoritis ,and appendicitis. 7. Give the technic of abdominal hysterectomy. 8. What are the advantages of the vaginal route for entering the abdomen? What are its dangers? 9. Name the diseases of the fallopian tubes. Give the treatment of salpingitis. Give the technic for an operation for pyosalpinx. 10. Briefly describe an operation for complete laceration of the perineum.

HISTOLOGY.

1. Give the histologic difference between voluntary and involuntary muscular fibers. 2. Name the structures, in their order, seen in a cross-section of the septum of the air vesicles. 3. What is the general shape of the cells in the gray matter of the cerebrum? 4. Describe the heart muscle. 5. Describe a uriniferous tubule. 6. Describe a cross-section of a lymph gland. 7. Name the different kinds of epithelial cells found in the stomach. 8. Describe a solitary gland. 9. With what kind of epithelium are the serous membranes lined? 10. How does the wall of the capillary vessel differ from that of the artery?

PHYSIOLOGY.

1. Describe the phenomena of blood clot. 2. What is a protoplasm? 3. Describe vasomotor nerve action on capillaries. 4. What is the function of the bile? 5. What is the function of pancreatic juice? 6. Describe the origin and function of chyle. 7. What are the chief waste products of the body? What are their channels of exit? 8. What is the chief source of body heat? 9. Describe the method of nutrition of the embryo. 10. Describe the features of cutaneous sensation.

MATERIA MEDICA.

1. Name four drugs that raise blood pressure and explain their action. 2. Name four drugs that lower blood pressure and explain their action. 3. Explain the action of digitalis and the nitrites in chronic nephritis. 4. Give dirivation, preparations and the respective dosage of veratrum viride. Explain its action in puerperal convulsions. 5. Name the classifications of cathartics and explain the peculiar action of each class. 6. Define diuretics; diaphoretics. Give an example of each and explain their physiologic action. 7. Give the derivation, uses and the physiologic action of salicylates. 8. Give the physiologic action of arsenic, including its ultimate effect on the tissues. 9. Give the therapeutic effect of quinin, in various doses. 10. Define a tincture, a solid extract, a fluid extract and give their general relative strength.

ECLECTIC MATERIA MEDICA.

1. What is a narcotic? Name six. 2. Define corrosives. Name five. 3. Define'a sanative medicine. Wherein does it differ from a poison? 4. What three influences are made in living tissues with sanative vegetable medicines? 5. When would you use aguinonia eufatoria? What are its medical properties? What tissues are influenced by it? 6. What are the indications for: (*a*) anemone pulsatilla, (b) anthemis nobilis, (c) apocynum, androsemifolium? 7. Give the remedies used in a case of (*a*) lobar pneumonia, (*b*) acute nephritis. 8. (*a*) What agents would you use in tinea circinatus? (*b*) impetigo contagiosa? 9. What are the properties *of the following agents*: (*a*) aristolochia serpentaria, (*b*) asarum canadense, (*c*) asclepias tuberosa, (*d*) baptisia tinctoria? 10. Name (*a*) five hepatics, (*b*) six cholagogues, (*c*) five aperients, (*d*) five hydragogue cathartics.

HOMEOPATHIC MATERIA MEDICA.

1. Differentiate the headache of aconite, ignatia, bryonia, china. 2. Describe a natrum mur. patient. 3. What are your typhoid-fever remedies and give indications. 4. Give keynote symptoms calling for bell., cham., rhus., puls., ferr., phos. 5. What remedies do you consider indicated in pneumonia? Give indications for remedies named. 6. Give description of typical sulphur patient. 7. Differentiate heart symptoms of digitalis, cactus grand., kalmia. 8. Describe a calc. phos. patient and give keynote symptoms. 9. What are the tissue remedies? 10. Give mental symptoms of Ignatia, puls. and stramonium.

DISEASES OF THE EYE AND EAR.

1. What are the symptoms of perforation of the membrana tympani? 2. Give the etiology and treatment of otitis externa diffusa acuta. 3. How is a diagnosis made between deafness due to disease of the middle ear and that resulting from disease of the labyrinth. 4. Give diagnosis and treatment of suppurative keratitis. 5. Give diagnosis and treatment of muco-purulent conjunctivitis. 6. Define amblyopia and mention four varieties. 7. What is the etiology and treatment of mastoiditis? 8. Give causes of atrophy of the optic nerve. 9. Give causes, prognosis and treatment of retinal hemorrhage. 10. How is the internal ear affected by syphilis?

SURGERY.

1. Give the treatment of a fracture of the femur three inches above the condyles. 2. Give the symptoms of stone in the bladder. 3. What inherent conditions would contraindicate an operation for carcinoma of the breast? 4. Describe in detail the preparation of a surgeon's person in order to secure the best asepsis. 5 Make a diagnosis of popliteal aneurism, and give the treatment of the same. 6. Make a differential diagnosis between appendicitis and empyema of the gall bladder. 7. Give in detail the proper treatment of a shock after a severe surgical operation. 8 Give the symptoms, diagnosis and treatment of tuberculosis of the kidney. 9. Give the symptoms and treatment of obstruction of the bowels. 10. Give the etiology, symptomatology, diagnosis, prognosis and treatment of coxalgia.

NERVOUS DISEASES.

1. Give symptoms of acute ascending paralysis. 2. What is Bell's palsy? 3. Give symptoms of compression of the spinal cord at the fourth dorsal vertebra. 4. Give symptoms of general paresis. 5. Give an outline of treatment of epilepsy. 6. Describe writers' cramp. 7. What is acromegaly? 8. What is beriberi? 9. What is caisson disease? Give its symptoms, course and prognosis. 10. Give two trophic changes of locomotor ataxia.

CHEMISTRY.

1. Name and give a formula for five acids used in medicine. 2. A specimen of urine shows specific gravity of 1022 and is neutral in reaction. On boiling, a white precipitate forms. To what substances may this be due? Give method of differentiating. 3. Name two chlorids of mercury. Give chemical formulæ and properties of each. 4. What is the chemical antidote for arsenical poisoning and its mode of quick preparation? 5. What elements compose the halogen group? Give symbol and valence of each. 6. Define (*a*) atom, (*b*) atomic weight, (*c*) molecule, (*d*) monad, (*e*) tetrad. 7. What salt of silver is most commonly used in medicine? Give formula. 8. Describe Trommer's sugar test. What chemical change takes place? 9. Could you use nitrate of silver in a normal saline solution? If not, why? 10. Give a practical test for (*a*) iodin, (*b*) copper, (*c*) arsenic.

ANATOMY.

1. How many bones compose the human skeleton? Into what groups are they divided? 2. Describe the sternum and the femur. 3. Name the bones of the wrist and their articulations. 4. Describe the ligaments of the shoulder joint. 5. Name the muscles of the forearm. Into what groups are they divided according to function? Name the muscles in each group. 6. Describe and give the relations of the external carotid artery and name its branches. 7. Name the arteries that form the circle of Willis. 8. *Describe* the origin, course, ganglionic connections, exit and distribution of the fifth cranial nerve, and give its common name. 9. In an amputation of the thigh at the middle third, give the structures you would divide *anterio-posteriorly*, and the same of the forearm. 10. Name and locate the abdominal viscera.

PRACTICE OF MEDICINE.

1. What means would you employ in the diagnosis of disease of the lungs, stomach and kidney? 2. Outline the normal liver. 3. Define a macule, papule, vesicle and bleb. Name two diseases in which each one is of diagnostic importance. 4. Give the topography of the thorax. Outline the lungs and their lobes. 5. Give the etiology, symptoms, physical signs, course and duration and prognosis of pulmonary emphysema. 6. Give etiology, differential diagnosis and dietetic treatment of gastric ulcer. 7. Give the diagnosis, course, duration and prognosis of chronic interstitial nephritis. In what class of individuals is it most frequently met? 8. Give the etiology, pathology, complications and prognosis of true dysentery. 9. Give etiology, course, symptoms and geographical distribution of yellow fever. 10. Locate the mitral and aortic valves. Give the differential diagnosis between a regurgitant murmur in each.

Association News.

THE PORTLAND SESSION.

Trip to Alaska.

The chairman of the local Committee of Arrangements, Dr. Kenneth A. J. Mackenzie, Portland, Ore., desires to hear from those who propose taking the trip to Alaska after the Portland session of the American Medical Association. It must be understood that a boat can not be chartered nor arrangements made for such a trip as this on short notice. It is, therefore, absolutely necessary that if a special boat is to be secured, it must be arranged for some time in advance, hence it is necessary to know how many desire to go. The round-trip fare from Tacoma or Seattle on the regular express steamers, calling at Southeastern Alaska ports, which include Ketchikan, Wrangel, Douglas Island, Treadwell, Juneau, Skagway and Sitka, is $70. This includes berth and meals on first-class steamers. The fare from Portland to Tacoma is $4.35, and from Portland to Seattle is $5.60, one way. The best starting point is Tacoma, because the trip between Tacoma and Seattle is the grandest part of Puget Sound waters. A trip such as the one contemplated will be a most interesting one. The company will be select and the time of year most propitious. If any of our readers are thinking of taking this trip they should write at once to Dr. Mackenzie.

Trips to the Hawaiian Islands and to the Orient.

As before announced. arrangements are in contemplation for a trip to Honolulu. It is not probable that a sufficient number can be secured to warrant engaging a special steamer, but a party of fifty can secure reduced rates. As we go to press, we are in receipt of a letter from Dr. Mackenzie announcing that the Pacific Mail Steamship Company will carry fifty excursionists to Honolulu at a round-trip rate of $110 each. The fine steamer *Korea*, said to be equal in all respects to the finest transatlantic steamers, will leave San Francisco July 22, a convenient day for sailing. In view of transpacific travel which must be accommodated. the company limits the number in this party to fifty. On this same steamer the round-trip rate to Yokohama will be $240; Hong Kong, $270, provided a party of not less than twenty make that trip. Reservations should be made early and we urge those who are contemplating these trips to write at once to Dr. Mackenzie.

Yellowstone Park Special.

The special train to Portland, which leaves Chicago in two sections, one June 30 and the other July 1, is filling up rapidly. The number is limited absolutely to 250, and we again urge those who are contemplating joining either of these parties to write at once and to make their reservations. For information regarding this trip see former issues of The Journal.

Hotel Arrangements.

We are asked to announce that the Committee of Arrangements is prepared to provide good accommodations for all who attend the Portland session, if applications are made in time. Those who are sure of going to Portland should reserve rooms at once. The chairman of the Committee on Hotels is Mr. H. C. Bowers, Portland, Ore.

To Portland from Nashville.

Dr. G. C. Savage, Nashville, Tenn., desires us to announce that he is arranging for a special car from Nashville to Portland, via St. Louis, Denver and Salt Lake City, to leave July 4, arriving at Portland on the morning of July 10. There will be stopovers in Colorado and at Salt Lake City. The return trip will be made via the Yellowstone Park and St. Paul.

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 11, 1905:

Hoff, John Van R., asst.-surgeon general, granted thirty days' leave of absence.

Jones, Percy L., asst.-surgeon, reports for temporary duty at Washington Barracks, D. C.

Shillock, Paul, surgeon, granted one month and fifteen days' leave of absence about March 10, 1905.

Dean, Elmer A., *asst.-surgeon, left Fort Riley,* Kan., *on ten days'* leave of absence.

Porter, R. S., asst.-surgeon, left Fort Niobrara, Neb., on ten days' leave of absence.

Reno, William W., asst.-surgeon, left Fort Myer, Va., for temporary *duty as surgeon on the transport Sumner.*

DeLoffre, Sam'l M., asst.-surgeon, granted thirty days' leave of absence from date.

Morse, A. W., asst.-surgeon, granted thirty days' leave of absence about February 27.

Thorp, Charles W., contract surgeon, ordered from Fort Ethan Allen, Vt., to Fort Adams, R. I., for temporary duty.

Kierulff, H. Newton, contract surgeon, relieved from duty at the Presidio of San Francisco and ordered to duty as surgeon of the transport *Buford.*

Wythe, Stephen, contract surgeon, relieved from duty at Fort Baker, Cal., and ordered to temporary duty at the Depot of Recruits and Casuals, Angel Island, Cal.

Clayton, George R., contract surgeon, *ordered to accompany troops* from Columbus Barracks, Ohio, to Fort Sheridan, Ill.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 11, 1905:

Benton, F. L., P. A. surgeon, ordered to the Naval Recruiting Station, Philadelphia.

DeLaney, C. H., P. A. surgeon, detached from the *Petrel* and ordered to the *Marblehead.*

Kerr, D. B., P. A. surgeon, detached from the *Buffalo* and ordered to the *Boston.*

Manchester, J. D., asst.-surgeon, detached from the *Marblehead and ordered to the Petrel.*

Miller, J., Jr., asst.-surgeon, detached from the *Boston* and ordered to the *Buffalo.*

Cooke, G. H., medical director, retired, detached from the Naval Recruiting Station, Philadelphia, etc., and ordered home.

Rodman, S. S., P. A. surgeon, detached from the *Pensacola* and ordered to the *Ranger.*

Bachmann, R. A., asst.-surgeon, detached from the *Wilmington* and ordered to the *Villalobus.*

Michels, R. H., asst.-surgeon, detached from the *Villalobus* and ordered to the *Wilmington.*

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 8, 1905:

Grubbs, S. B., P. A. surgeon, granted leave of absence for two days from March 7

Billings, W. C., P. A. surgeon, granted leave of absence for fourteen days from March 3.

McLaughlin, A. J., asst.-surgeon, granted leave of absence for six days from March 6.

Francis, Edward, asst.-surgeon, granted leave of absence for seven days from March 6, under Paragraph 191 of the Regulations.

Keatley, H. W., A. A. surgeon, granted leave of absence for four days from March 1, under Paragraph 210 of the Regulations.

Lopez, Esteban, A. A. surgeon, granted leave of absence for thirty days from January 1 and five days from January 31 on account of sickness.

Rossello, M. M., A. A. surgeon, granted leave of absence for seven days from February 18, under Paragraph 210 of the Regulations.

Stevenson, J. W., A. A. surgeon, leave of absence for seven days from February 27 revoked.

Achenbach, John, pharmacist, granted leave of absence for three *days from February 26, under Paragraph 210* of the Regulations.

BOARDS CONVENED.

Board convened at Washington, D. C., March 10, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Asst.-surgeon General G. T. Vaughan, *chairman;* Asst.-*surgeon* H. McG. *Robertson, recorder.*

Board to meet at San Francisco, April 3, for the examination of asst.-surgeons to determine their fitness for promotion to the grade of P. A. surgeon. Detail for the board: P. A. Surgeon Rupert Blue, chairman; P. A. Surgeon H. S. Cumming; P. A. Surgeon D. H. Currie, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended March 10, 1905:

SMALLPOX—UNITED STATES.

California: *Feb. 18-25, Los Angeles, 2 cases; San Francisco,* 2 cases.

Florida: Jacksonville, Feb. 25-March 4, 1 case.

Illinois: Chicago, Feb. 25-March 4, 16 cases, 3 deaths.

Indiana: Hammond, Feb. 21-28, 1 case.

Kentucky: Louisville, Feb. 23-March 2, 2 cases.

Louisiana: New Orleans, Feb. 25-March 4, 6 cases, 4 imported.

Michigan: Detroit, Feb. 25-March 4, 2 cases; at 74 localities, Feb. 11-18, present.

Missouri: St. Louis, Feb. 25-March 4, 47 cases, 2 deaths.

Nebraska: Omaha, Feb. 25-March 4, 2 cases.

New York: Mount Vernon, Feb. 25-March 4, 1 case.

Ohio: Toledo, Feb. 25-March 4, 3 cases.

Tennessee: Feb. 25-March 4, Memphis, 23 cases; Nashville, 6 cases.

West Virginia: Wheeling, Feb. 25-March 4, 1 case.

Wisconsin: Milwaukee, Feb. 11-25, 21 cases.

SMALLPOX—FOREIGN.

Bosnia and Herzegovina, Dec. 1-31, 17 cases, 2 deaths.

France: Paris, Feb. 11-18, 8 cases, 2 deaths; Nantes, Feb. 8-22, 19 cases, 7 deaths.

Great Britain: Feb. 11-18, Leeds, 9 cases; Leith, 3 cases; London, 3 cases; Newcastle-on-Tyne, 5 cases; Nottingham, 1 case; South Shields, 2 cases

India: Bombay, Jan. 31-Feb. 7, 122 deaths; Karachi, Jan. 29-Feb. 5, 7 cases, 2 deaths; Madras, Jan. 28-Feb. 3, 1 death.

Italy: Feb. 9-16, Lecce, 34 cases; Treviso Province, 4 cases.

Japan: Feb. 22, Ehime, 26 cases; Fukuoka, 2 cases; Hiroshima, 2 cases; Kumamoto, 1 case; Nagasaki, 2 cases; Osaka, 8 cases; Yamaguchi, 1 case.

Mexico: *City of Mexico, Jan. 27-Feb. 11, 4 cases,* 6 deaths.

Straits Settlements: Singapore, Jan. 14-21, 1 death.

SMALLPOX—INSULAR.

Philippine Islands: Manila, Jan. 7-28, 5 cases, 1 death.

YELLOW FEVER.

Mexico: Coatzacoalcos, Feb. 11-18, 1 case, 1 death.

Panama: Panama, Jan. 1-Feb. 14, 27 cases, 8 deaths.

CHOLERA.

India: Bombay, Jan. 31-Feb. 7, 1 death.

Russia: Jan. 16-23, Erivan, 1 death; Saratow, 5 cases, 3 deaths

PLAGUE—INSULAR.

Hawaii: Aiea, March 2, 1 death.

PLAGUE—FOREIGN.

Arabia: Aden, Feb. 4-11, 280 cases, 257 deaths.

India: *General,* Jan. 21-28, 38,204 cases, 33,087 deaths; Bombay, Jan. 31-Feb. 7, 450 deaths; Calcutta, Jan. 28-Feb. 4, 84 deaths; Karachi, Jan. 29-Feb. 5, 44 cases, 41 deaths.

Russia: Ural Territory, Jan. 3-9, 8 cases, 15 deaths.

Society Proceedings.

COMING MEETINGS.

Missouri Valley Medical Association, Kansas City, March 23-24.

Medical Association of the District of Columbia, Washington, April 4.

Association of American Medical Colleges, Chicago, April 10.

Tennessee State Medical Association, Nashville, April 11.

South Carolina Medical Association, Greenville, April 12.

Medical Association of the State of Alabama, Montgomery, April 18.

Medical Society of the State of California, Riverside, April 18-20.

Florida Medical Association, Jacksonville, April 19.

Medical Association of Georgia, Atlanta, April 19.

Mississippi State Medical Association, Jackson, April 19.

American Medico-Psychological *Association, San Antonio,* Texas, April 18-21.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Regular Meeting, held Feb. 1, 1905.

The President, Dr. Arthur V. Meigs, in the Chair.

Recent Advances in the Technic of Roentgen Therapy.

Dr. Charles Lester Leonard said that the apparent variation in results is due to variations in technic and the experience of the operator. In addition, varying qualities of Roentgey ray produce different effects and the quality must be adapted to the individual lesion. The physiologic lesion is stimulant and alterative. In large doses it stimulates the autolytic ferments within pathologic cells which results in their dissolution and absorption. The difficulty in administration lies not only in adapting the proper quality of ray and dose to the individual lesion to be treated, but also in the fact that the clinician must know how to produce the dose with a complicated mechanism, and must be able to recognize when the right quality and quantity are being employed by their clinical effects. While any dose and any technic will produce some effects, exact dosage is essential to the efficient employment in difficult cases, and as with all other powerful remedies, clinical experience in adapting the dose to the individual patient counts in the final result.

Treatment of Non-Malignant Diseases by Roentgen Ray.

Dr. Russell H. Boggs of Pittsburg called attention to the necessity of distinguishing between the non-malignant diseases which should and those which should not be treated by the *x*-ray. The method of application of the rays and the judgment of the operator account largely for successful or unsuccessful work. It is just as essential to administer a therapeutic dose when applying the Roentgen rays as it is when prescribing powerful drugs. He considers the *x*-ray one of the best therapeutic agents known for the treatment of acne and many other skin diseases, but it is not necessary, in many instances, to treat the trivial and less obstinate cases by this method, since cures may be effected with other treatment causing less inconvenience to the patient. For the treatment of lupus he regards the *x*-ray, supplemented by the Finsen light, the most efficient therapeutic agent. He also considers the *x*-ray the most efficient treatment for tubercular glands, Hodgkin's disease and selected cases of goiter.

X-Ray Treatment of Malignant Growths.

Dr. Ennion G. Williams of Richmond, Va., said that the results of the practical use of the ray as reported by the different operators have differed greatly; that the general profession had been misled by the over-enthusiastic as well as by the pessimistic operators, so that the true value of the ray has yet to be found out. To determine the therapeutic value of the ray Dr. Williams said it was necessary to consider, first, the factors concerned in the production and variation of the *x*-ray and the methods of its application in treatment; second, the histologic changes due to the *x*-ray, and third, the nature and location of the growth to be treated. The tissues most influenced by the ray are those having a large proportion of cells whose vital processes are very active, such tissues as are found in malignant tumors, carcinomas and sarcomas. Benign tumors, composed largely of intercellular substance with a small proportion of cells not actively proliferating, are, therefore, only slightly or not at all influenced by the ray. He concludes that the prognosis depends on the character of the growths and on their accessibility to the proper quantity of radiant energy. He believes that the ray is indicated in superficial growths. For deep growths, until there can be shown more uniformly good results, radical surgical procedures should be recommended, to be followed by sufficient *x*-ray exposure to destroy malignant cells several inches from the surface. Inoperable cases should be rayed, because of relief of pain and other results which have been noted.

DISCUSSION.

Dr. George C. Johnston attributed many of the claims put forth to over-enthusiasm and inexperience. On the other hand, there is a mass of evidence put forth by some of the best men of the profession which is worthy of acceptance. Success or failure in the application of the agent depends on the dose, and the dose of the *x*-ray is composed of several factors: 1. The length of time the agent is allowed to act. 2. The distance from the source of the ray to the patient. 3. The degree of vacuum of the tube emitting the ray. The third factor is incapable of any accurate measurement short of actual observation of the radiation itself. Another factor in dosage is penetration, and this must be adapted to the depth it is desired to reach. Since some tubes produce a burn easily, Dr. Johnston advises beginners to test every tube in radiographic work before using it on a patient. In radiographic work the *x*-ray man must have a certain technic, with every detail of which he must be familiar. In radiotherapeutic work he must have a technic more exact and capable of immediate variation to suit individual cases.

Dr. Johnston's position is that the legitimate *x*-ray man does not consider himself the successor of the surgeon, but is proud to be accorded the position of assistant, believing that he has at his command an agent which will afford the surgeon better results in his malignant cases. Thorough postoperative radiation by a qualified *x*-ray operator is frequently effective in removing possible foci of disease.

The future of malignancy, Dr. Johnston believes, depends on the general practitioner, because he sees the cases first. Each month he has more of the early cases of cancer, as cancer of the breast, sent to him for treatment. His recommendation in such cases is a Halsted operation and radiotherapy to prevent recurrence. Cases apparently cured by this method have remained so, but he prefers to call them cases of inhibition, more or less permanent, with the hope that they will remain permanent.

The need of *x*-ray workers is the co-operation of the surgeons and pathologists. As soon as all work together in harmony malignancy and other diseases will present a brighter future.

Dr. John B. Shober has seen mostly the cases of malignant disease in women, and in six or seven cases of inoperable carcinoma of the cervix he has noted the inhibitory action of the agent. In one case, following hysterectomy for carcinoma of the uterus, treated by the *x*-ray and radium, the growth, which was the size of an English walnut, disappeared in the course of ten weeks, and there was no sign of recurrence. In a case of carcinoma of the breast, the growth increased in size, but softened, then diminished in size, and there ultimately remained no sign of the tumor except a small induration, possibly the result of an accumulation of fibrous tissue.

Dr. George Erety Shoemaker believes that after the surgeon's work is finished he owes the duty to his patient of having the *x*-ray applied for a definite time. From his own experience with cancer of the uterus he would advise, first the cautery, after that surgical excision of the part, including the cautery scar, and finally the *x*-ray.

Dr. W. S. Newcomet referred to the value of the *x*-ray as evidenced in desperate cases which react and get well. He cited a case of trachoma in a girl of 16 which had existed since the age of three months. She had been able to count fingers only in the light. As the result of the *x*-ray treatment she can now see a distance of two or three squares.

CALIFORNIA ACADEMY OF MEDICINE.

Regular Meeting, held Jan. 24, 1905.

The President, Dr. Dudley Tait, in the Chair.

Acute Hodgkin's Disease.

Dr. George Blumer reported a case presenting the clinical picture of acute Hodgkin's disease. The patient, a young man, 19 years old, with negative history, had had an accident three months before. The disease began with progressive weakness, nausea, vomiting and dyspnea; some fever in the evening, with night sweats. In three months the patient lost thirty pounds in weight. A few days before death he suffered from some pain in the liver. On examination he showed general enlargement of the lymph glands, especially those of the neck, and enlargement of the spleen and liver. The heart and urine appeared to be normal. The blood showed 3,656,000 red corpuscles, 8,000 leucocytes and 54 per cent. of hemoglobin. A differential count showed 8 per cent. of polymorphonuclear leucocytes and 92 per cent. of mononuclear forms, which were divided into 45 per cent. of large cells and 47 per cent. of small cells.

At autopsy the lymph glands, tonsils, spleen and liver were found to be enlarged. The lymph glands contained none of the large cells described by Reed as characteristic of Hodgkin's disease and no eosinophilic cells. The lymph follicles of the spleen were especially enlarged. The kidneys were densely infiltrated with round cells. The bone marrow, though presenting no macroscopic changes, showed on microscopic examination a lymphoid hyperplasia.

Clinically the patient presented the picture of an acute Hodgkin's disease, with the exception that the mononuclear cells in the blood were relatively very much in excess, whereas in true Hodgkin's disease no such increase should occur. Pathologically, however, the case is one of lymphatic leukemia, as shown by the changes in the bone marrow and other organs, a so-called "aleukemic leukemia."

DISCUSSION.

Dr. **William Ophüls** doubted if it is possible to separate Hodgkin's disease as sharply as Reed and others have tried to do. In a recent case he saw the typical changes described by Reed in the lymph glands, and yet there was a round-cell sarcoma of the thymus gland, which was invading neighboring structures.

Dr. **P. K. Brown** referred to a dog whose lymphatic glands gradually increased in size. At first the number of leucocytes was not increased, but just before death a considerable increase took place.

Dr. **William Ophüls** examined specimens from this dog and found that they presented the changes of leukemia rather than those of Hodgkin's disease.

Dr. **Blumer** stated that the dog apparently showed a similar condition to that of his patient, only that the former's leucocytes had increased before death, whereas the patient's had not. Possibly a differential count made in the early stages would have shown that the dog had had a leukemia.

Dr. **Dudley Tait** showed a patient on whom he had operated about seven years before for adenocarcinoma of the breast by the Willy Meyer operation.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, held Thursday, Jan. 5, 1905.

The President, Dr. Richard C. Norris, in the Chair.

A Consideration of Fibroid Tumors of the Uterus Based on a Series of Cases Treated Surgically.

Dr. **J. Clarence Webster**, Chicago, found the following degeneration in 52 of 210 cases of fibromyoma of the uterus: Calcareous, 2 cases; cystic, 13 cases; edematous, 6 cases; myxomatous, 4 cases; suppurating, 10 cases; adenocarcinoma of cervix, 1 case; sarcoma, 2 cases; hemorrhagic, 3 cases; necrosis, 11 cases. Pelvic complications were noted in 164 cases, as follows: Broad ligament development, 11 cases; prolapsus uteri, 7 cases; retroversion of the uterus, 11 cases; hematosalpinx, 6 cases; ovarian cystomata, 12 cases; unilateral salpingo-ovaritis, 7 cases; bilateral salpingo-ovaritis, 42 cases; unilateral ovaritis, 3 cases; bilateral ovaritis, 29 cases; hernia, 4 cases; appendicitis, 26 cases; pregnancy, 6 cases. In 99 instances there were pathologic changes in the tubes and ovaries. The association of malignancy was noted only in two cases. In 2 there was sarcoma of the corpus uteri, involving the fibroid growth; in a third, early adenocarcinoma of the cervix was present. Cardiovascular symptoms were present in about 25 per cent. of the cases.

A question of considerable interest is that relating to the influence which may be exerted by products of the uterine growth on the heart, kidneys, and other organs through the medium of the circulation. Cardiac hypertrophy may sometimes result when the tumor is only of moderate size. Renal disturbances are more common in association with fibroids than is generally believed. In about 30 per cent. of the cases there was noted one or more of the following conditions: Deficient amount of urine or urea; albumin; casts; edema of the feet. In no instance was there evidence of previous organic renal disease, nor did treatment fail to bring about marked improvement prior to operation.

Taking into consideration the pressure effects, the tumor degenerations, the pelvic and abdominal complications, the changes in the heart, large vessels, kidneys and liver, the chronic anemia of hemorrhagic cases, and other occasional associations, e. g., suppuration, gangrene, peritonitis, phlebitis, embolism, the influence of pregnancy and labor, the new growth must be considered as seriously increasing morbidity and mortality in women in whom they occur.

The view held by some that all fibroids of the uterus should be removed surgically unless there is some marked contraindication to operation is not upheld. All large or growing tumors or small ones which cause troublesome or serious symptoms should be treated surgically. In attempting to establish indications for surgical treatment various factors must be considered. Thus the site of the growth may indicate early removal of a tumor, e. g., a submucous polypoidal fibroid, a cervical growth, one developing extraperitoneally, a subperitoneal tumor tending to fall within the pelvic cavity, etc. The nature of the tumor may afford an indication, e. g., rapid growth, cystic change, necrobiosis or infection, malignancy, association with pregnancy. One pedunculated subserous tumor, by falling below the pelvic brim, may cause serious pressure symptoms which might never be found with multiple sessile growths. Fibroids should never be allowed to reach a large size, that is, to become palpable abdominal swellings. The nature of the associated complications may often afford the indication for surgical measures.

In regard to the choice of surgical procedure, ligation of the uterine arteries has scarcely any place in treatment. Removal of the uterine appendages should only be carried out in the rare cases in which other procedures are inadvisable, on account of the patient's general condition, or when the relationships of the tumor make removal impossible. Myomectomy has been less practiced than it should have been in recent years, owing to the brilliant results obtained in the reduction of the death rate following total extirpation and supravaginal amputation of the uterus. The conservative procedure was carried out by the author 48 times in the 210 cases. Supravaginal amputation has been practiced in preference to total extirpation as a routine operation, because it may usually be performed in a somewhat shorter time. There is less hemorrhage, the anatomic relationships of the pelvic floor are better preserved, and there is less risk of wounding the ureters. In the occasional association of fibromyoma and malignant disease, total extirpation of the whole uterus is the most scientific procedure.

DISCUSSION.

Dr. **Ellice McDonald** of Albany considers the subject of fibroids to be still a very open question. A certain percentage of fibroids are prone to degenerate into sarcoma. He does not believe the question entirely settled, whether a fibroid may degenerate directly into a sarcoma, or whether the sarcoma is grafted on to the fibroid. The greater number of gynecologists and pathologists are turning to the idea of a fibroid being degenerated directly into a sarcoma. This is of great importance, not only to the gynecologist and pathologist, but to the embryologist. The embryologist will finally accept the idea though it is contrary to all his theories. While carcinoma of the cervix is not more common in fibroid than in the ordinary run of cases, it seems that adenocarcinoma of the fundus is a little more common in diseased conditions of the fundus or with multiple fibroids than in the ordinary run of cases. Tubal complications are one of the most important in regard to fibroids, because on the presence or absence of these complications must depend choice of operation. If it is true the ovaries are diseased in a great number of these cases, if cystic degeneration of the ovary is more common in fibroid disease of the uterus than in other tumors, it is a question whether the ovaries should be left with the presence of cystic disease eradicated. One of the most important studies is for someone to give some true idea of the conditions of the surgical menopause.

In regard to the question of cardiovascular disease, his findings in 14 postmortems corresponded with Dr. Webster's, but in three cases there was cardiovascular disease associated with a fibroid disease of the uterus; in one case aortic valvular disease; in one case brown atrophy of the heart, and in the third there was mitral disease.

The question of the predisposition of the various races should form the basis of all studies of fibroids, because before the study of the mortality and morbidity is undertaken there should be some knowledge of the percentage of occurrence. He has found from postmortem records, mainly in women of Dutch extraction, that one woman in every seven in the upper part of the state of New York had a fibroid. The well-known predisposition of the negro race to fibroids is borne out by experience. At the Lying-in Hospital in the City of New York, in 2,570 cases, fibroids were found thirteen times, less than one-half of one per cent. In 3 of these 13 cases there was postmortem hemorrhage. The fibroids were all of the interstitial variety; in two cases the uterus contracted well, but in one case there was alarming hemorrhage. In three cases radical extraction of the membrane was necessary, and immediate packing. In three cases there was malposition of the uterus, two of which were curetted. In five cases there were some pathologic lesions of the placenta. In all cases in which there was some alteration in the placenta it was adherent to the fibroid. There was a large area of necrosis, which seemed in one case to be a calcareous degeneration of the placenta, but in consideration of the frequency with which this occurs, he thinks the fibroid had nothing to do with it. Of the thirteen cases of fibroids, only one came to cesarean section. He notes that in obstetrical cases there is this tendency to postpartum hemorrhage in all fibroids situated in the uterine wall. He cited one case of pedunculated fibroid which aborted at three months. In regard to the danger of doing myomectomy in the presence of disease of the tubes or kidneys, he thinks one must look not only on direct disease of the tubes when pus is present, but on disease of the tubes of any sort as being potential sites of infection.

Dr. Reuben Peterson of Ann Arbor said that in approximately 80 recent cases his proportion of malignancy was greater than that of Dr. Webster. There were two cases of sarcoma and one of adenocarcinoma. He advised the microscopic examination of every bit of tissue. He cited a case in which malignancy was overlooked from lack of such examination.

Dr. Peterson's proportion of cases of degeneration of fibroids is not as great as that shown by Dr. Webster and Dr. Noble. From the fact that degenerations do occur, that there is malignancy and cardiac change, he is more inclined than formerly to advise operation.

Dr. E. E. Montgomery thought it obvious that the mere presence of a fibroid growth would of itself tend toward the development of malignant disease. In view of the frequency with which fibroid growths occur, it does not seem to him that the proportion of malignant infection is sufficiently great to assume that the growth is an essential feature in its development. The contraction which takes place in fibroid tissue leads to atrophy and arrest of its circulation, tending to the development of edema. This edema occurs, not only in cases in which strangulation has taken place as the result of the twisting of the pedicle of a subserous fibroid, but also in growths in which there is a tendency to degeneration of the arteries, shown in associated ovarian hematoma. He is inclined to think that the disease of the heart and other organs is more frequently found in cases in which the fibroid is of the submucous or interstitial form, where the tendency to hemorrhage is marked. A fibroid occupying its position in the pelvis and attaining to any size must affect the kidneys by pressure on the ureters.

Dr. Montgomery agreed with the author that it is difficult to fix a rule for the time of operation. The mere presence of a fibroid growth of the subperitoneal variety is not an indication for operation, but increase of the size of the growth, disturbance of circulation and degenerative changes warrant operation.

While he has performed the operation of ligation of the arteries for the control of the growth of the tumor, he has never regarded it favorably from a theoretical standpoint. With the cutting off of the blood supply sufficient to limit the growth there is danger of arrest of circulation with resultant necrotic change in the tumor. The operation of myomectomy appeals to him in women under thirty in whom it seems undesirable to bring about the cessation of the sexual function. It is readily understood that a more stormy convalescence from this operation is expected from the fact that in the enucleation of a number of single fibroid growths from the uterine wall there is a large amount of tissue of low vitality which is readily infected, and an accumulation of blood in dead spaces from which the patient runs an increased danger.

In performing hysterectomy Dr. Montgomery has for the last four years preferred panhysterectomy to the supravaginal operation, because in an occasional case cancer involves the cervix, and in some cases there has been injury to the cervix. There is a better drainage and less likelihood of elevation of temperature, and the convalescence of the patient is more satisfactory in the presence of the complete operation.

Dr. Barton Cooke Hirst referred to his record of 189 fibroid tumors treated by some form of surgical procedure. Twenty-seven per cent. were treated by myomectomy; 60 per cent. by hysterectomy. Vaginal enucleation, oöphorectomy and ligation of the uterine arteries made up the remaining 13 per cent. He has seen the following degenerations: 3 sarcomatous, 5 cystic, 4 necrotic, 2 myomatous and 1 calcareous. In about 50 per cent. there was some pathologic condition of the tubes and ovaries, usually in the shape of old adhesions; occasionally a hydrosalpinx, and very rarely a pyosalpinx, not in 2 per cent. of the cases. There was an associated adenocarcinoma of the corpus in one case. He has found electricity the most useful palliative treatment of hemorrhage for the time being in fibroid tumors, but never has seen a tumor reduced in size or the condition benefited in any other way by this agent. With the positive pole of a galvanic current in the uterine cavity, 40-60 milliamperes checks hemorrhage in suitable cases more surely than any other means he has tried. Some cases may require nothing else, if the tumor is small in size, is not growing, shows no signs of degeneration or inflammatory complications, is not causing pressure symptoms and exerts no deleterious influence on the general health.

Dr. Charles P. Noble thought the chief point for discussion was whether fibroids should be treated from the standpoint of symptoms or from that of life-history of these growths. He believes that in the future they will be treated from the latter, just as ovarian growths are studied, rather than from the standpoint of symptomatology. He thought it a remarkable fact that in 210 cases there was not a single case of adenocarcinoma of the corpus uteri. He regards fibroid tumor of the uterus a predisposing cause of adenocarcinoma of the corpus uteri. The complications in the appendages were much greater in number in Dr. Webster's cases than his own.

In reference to the total extirpation of the uterus versus supravaginal extirpation, out of approximated 700 hysterectomies, so far as he knows, there have been two cases of carcinoma of the cervix following supravaginal amputation of the uterus. In one case the condition was doubtless overlooked at the time of operation, as carcinoma of the pelvis developed promptly. In the other case, a supravaginal amputation for inflammatory disease, epithelioma of the cervix developed four or five years later. He has had but one death following myomectomy, and that in a case of sloughing fibroid removed per vaginam, but he attributes his good results to care in the selection of patients. He has had a number of patients bear children after myomectomy. His hysterectomy patients have not been especially troubled with the menopause symptoms; nor has he seen any difference in sequel, whether the ovaries have been removed or left behind. In a large percentage of the cases the troublesome symptoms are greatly exaggerated.

Dr. John G. Clark spoke on the three following points: (1) the possibility, after a supravaginal hysterectomy, of a malignant involvement of the remaining stump; 2, the benefits of leaving the ovaries behind in cases of fibroid tumors; (3) the effect of fibroid tumors in the production of cardiac disease. Relative to the first point, he said that a supravaginal amputation of the uterus is much easier, and in the end gives more satisfactory results than panhysterectomy. On the other hand, the objection to the partial operation because of the dangers of a malignant degeneration in the cervical stump or the recurrence of carcinoma is a strong one, but will be obviated by a thorough cauterization of the cervical canal either with the Paquelin or electric cautery. This leaves only the rim of the cervix behind, but does not break the attachment of the broad ligament on either side. Concerning the second point, for ten years he has followed the fixed policy of leaving behind the ovaries in every case of a fibroid tumor where it was possible, and he has been astonished to find that this can be done in a large proportion of cases. One is justified, even when there are adhesions, in leaving behind all or a portion of one or both ovaries; for in a considerable proportion of those inflammatory cases adhesions are not due to infection, but to traumatism produced by rubbing of the tumor against the ovary or crowding the ovary in against the pelvic wall, or downwards into Douglas' cul-de-sac. If this is relieved by the removal of the tumor the ovary will not subsequently give rise to any serious trouble. So many patients have told him that they were almost free of the distressing sequelæ of which others frequently complain, that he is persuaded that this is the better policy to pursue. Relative to the third point, he is of the opinion that this complication is less frequent in this country than in Germany. The German gynecologists seem to be greatly impressed with the frequency of the so-called "myoma heart," and warn against the dangers of sudden death incident to heart disease following hysterectomy for fibroid tumors. Whether there is a distinct influence exercised by a fibroid tumor in producing heart trouble, he is unable to say, but he can not conceive of any more radical disturbance being caused than that of a heart overworked in pumping blood through the resistant tumor mass. A pulmonary embolus is much more likely to be a sequel of a hysterectomy for fibroid tumor than any other pelvic operation, because the impaction of the tumor in the pelvis or its pressure on the large vessels at the brim of the pelvis is very likely to weaken their walls and cause more or less dilatation. Not only may these vessels be the seat of a thrombus, but the greatly enlarged ovarian and uterine veins may also be the seat of large thrombi, from which emboli may be dislodged and carried to the lungs. Therefore, sudden death following hysterectomy is more frequently due to a pulmonary embolus than to cardiac disease *per se*.

Dr. W. Easterly Ashton thinks that every case of fibroid must rest on its own merit, and that in determining the line of treatment each case must be specially studied. There should be taken into consideration: (1) the mortality of major operations on uterine fibroid; (2) the danger of degenerations occurring, and (3) the social condition of the patient.

Considering that the true mortality of hysterectomy is probably from 5 to 8 per cent., it is a serious matter whether or not to advise operation. On the other hand, the social condition of the patient is also to be considered. If a tumor is causing but little trouble, with no pressure symptoms and the patient is in fairly good condition, he does not advise operation, but the patient should be seen frequently, and if the tumor begins to grow, operation should be advised without saying that it is taking on this or that degeneration.

The operation of myomectomy, he believes, has a very limited field, and it is dangerous. He believes if he were to adopt the operation he would have a large mortality, as the spaces are not well filled up and the tissues so bruised that a bad focus for infection is left. Comparing panhysterectomy with supravaginal operation, Dr. Ashton believes that in all cases, except where infection or malignancy exists, the supravaginal operation is the one of selection. Panhysterectomy shortens the vagina, the marital relations are interfered with, and the operation has a higher mortality.

Dr. Webster said that he has had occasion to study German statistics of hysterectomy both for fibroids and carcinoma, and he is confident that the mortality reported is very considerably higher than it is in the hands of operators in this country; and the same is true of the mortality of myomectomy in Germany. Myomectomy should not be performed where very large incisions or where much mutilation of the uterus are necessary or where there were many tumors. Taking everything into consideration, he believes that the logical procedure is to do the complete operation in every case and to put out of consideration supravaginal amputation. He is very certain, however, that this procedure will not commend itself to the majority of operators, who will continue to take chances as regards the sequelæ.

The mortality of the major operations in non-infective cases should not be as large as eight or nine per cent. in the hands of expert operators. The percentage has fallen below this figure in this country in the last three or four years, and if Dr. Noble's statistics are correct, the lives of women will be saved by carrying out these operations rather than by leaving the tumors untouched.

Regarding the surgical menopause, the menopause symptoms are no worse after operation than in normal conditions. The phenomena were less marked and the health certainly better in those cases in which abnormal losses of blood were prevented.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Rheumatism.

Molsbury, in an abstract in the *Jour. Mich. State Med. Soc.*, recommends in the treatment of acute articular rheumatism that the patients wear flannel and sleep between blankets. The best single article of diet, he says, is milk, which should be diluted with an alkaline mineral water. The pain may be relieved by fixing the joint by wrapping it in cotton or in hot cloths. As a local application to the joint the following is recommended:

℞. Sodii salicylatis
Adipis
Lanolini, āā ....℥i 30|
M. Sig.: Apply hot twice daily.

Pain may also be relieved by the use of the blister or by a light application of the Pacquelin cautery. The oil of wintergreen is recommended as follows:

℞. Ol. gaultheriæ ....℥ss 15|
Sig.: Twenty drops in milk every two hours.

Excessive fever should be reduced by baths and the tumultuous action of the heart may be controlled by the application of the icebag, keeping constant attention on the heart. The throat should be carefully inspected and any angina or tonsillitis should receive careful attention. In the chronic form of articular rheumatism iodin in the form of potassium iodid or Lugol's solution is the best remedy and ranking second in order of efficiency the author recommends colchicum, in doses of ten drops of the tincture (.65). He also recommends passive movements of the affected joints with local application of heat and friction. In some cases he advises the intramuscular injection of iodin in sesame oil, using from 15 to 60 minims (1.-4.) of a 25 per cent. solution, injecting it deep into the gluteal region, and repeating it every second day. As a topical application, the following may be employed:

℞.	Ol. gaultheriæ	℥i	30	
	Alcoholis	℥iii	90	

M. Sig.: To be used locally.

Change of climate, to a warm equable locality, is of great benefit in these chronic forms.

In the gonorrheal form of rheumatism heat, electricity, friction and massage are recommended. In muscular rheumatism the muscle should be put at rest by strapping the chest with adhesive plaster in cases of pleurodynia, and by the application of heat and friction. In the nodular form of rheumatism, arthritis deformans, the pain may be relieved by hydrotherapy and massage. Arsenic is valuable as a tonic. Iron is indicated when anemia is present. Iodin in 10 minim (.65) doses, and potassium iodid or the sodium salt, are entitled to consideration as therapeutic agents, given in milk. Blisters in some cases are of value, and in most cases a change of climate is of great importance.

Measles.

In the treatment of measles according to Bjorkman in *Merck's Archives*, it must be remembered that serious complications may follow the mildest attack of measles. Consequently the patient should always be put to bed and unnecessary exposure should be avoided. The room should be kept at a temperature of 70 F., proper ventilation established, and the brighter rays of light excluded in cases of photophobia. The eyes should be cleansed with proper washes, the nasal and buccal cavities properly irrigated with a 2 per cent. boric acid solution, and gargles should be employed to prevent extension of infection to the ears.

In cases of high temperature accompanied by nervous excitement a cold, wet pack is of value, and for insomnia and for general restlessness and threatening convulsions, a generous dose of the bromids is indicated. In the treatment of the catarrhal condition of the air passage the ammonium salts are used. Other expectorants such as ipecac, scilla or senega may be combined with the ammonium salts. No strong purgative or cathartics should be used in measles, as this disease is sometimes complicated by a stubborn diarrhea. If diarrhea exists, the strictest diet should be observed and measures taken to correct the diarrhea, and, if necessary, a few drops of the tincture of opium may be administered or Dover's powder or bismuth subgallate, which is the least harmful preparation, may be used. The author recommends the following combinations in the treatment of this disease:

℞.	Acidi boracici	ʒi	4	
	Aquæ rosæ	℥iv	120	

M. Sig.: Use freely as an eye lotion several times a day. This should be slightly warmed before application.

For the bronchitis the following is recommended:

℞.	Infusi ipecac (gr. iv to ℥iii)	℥iii	90	
	Ammon. carb.	gr. xxiv	1	65
	Ammon. chloridi	gr. xv	1	
	Syr. senegæ q. s. ad	℥iv	120	

M. Sig.: One teaspoonful every two or three hours; for a child of four or five years.

For older children the following may be used:

℞.	Infusi ipecac (gr. v to ℥iiiss)	℥iiiss	105	
	Ext. opii	gr. ss		03
	Liq. ammon. acetatis	gtt. xxv	1	65
	Syr. senegæ q. s. ad	℥iv	120	

M. Sig.: One dessertspoonful every two hours.

For the earache the following combination is of service:

℞.	Acidi carbol.	m. xx		65
	Alcoholis	m. xlv	3	
	Glycerini q. s. ad	℥i	30	

M. Sig.: A few drops warmed and instilled into the ear.

As an antiseptic to the buccal cavity the following is of service:

℞.	Acidi salicylici	gr. xv	1	
	Acidi borici	gr. lxxv	5	
	Thymol.	gr. viii		50
	Glycerini	ʒv	20	
	Spts. menth. pip. q. s. ad	℥iiiss	105	

M. Sig.: One teaspoonful in a glass of water as a mouth wash.

Erysipelas.

Mortimer, in *Med. Summary*, recommends as prophylactic measures in the treatment, that the patient be isolated and that all dressings should be burned when removed. He says that proper ventilation should be established and that thorough cleanliness should be observed. In the general management of the patient he recommends small doses of calomel, gr. ⅛ (.008), every two hours for eight doses, followed by a saline. For the first twenty-four hours minim one-fourth (.015) of the tincture of aconite should be given every two hours.

When stimulation is required, alcohol should be administered freely, and, if necessary, strychnia and nitroglycerin. An icebag or cold compresses applied to the head to relieve the pain are of service; in addition the following may be given:

℞.	Caffeinæ	gr. ss		03
	Camphor monobrom.	gr. ss		03
	Acetanilidi	gr. ii		12

M. Ft. cap. No. i. Sig.: One such capsule every two hours.

Applied locally to the affected areas the author recommends compresses saturated with the following:

℞.	Tinct. opii	℥i	30	
	Liq. plumbi subacet.	℥ii	60	
	Aq. destil.	Oi	500	

M. Sig.: To be applied locally on compresses.

Liquid nourishment should be given liberally and systematically about every three hours. It should consist chiefly of milk, broths and beef juice. Ice-cream may be given, and cold water may be given freely and may be acidulated; lemonade may be substituted for the water. During convalescence a general tonic treatment is indicated with some form of iron.

℞.	Strych. sulph.			
	Acidi arsenosi, āā	gr. 1/50		0012
	Ext. gentianæ	gr. ss		03
	Quin. sulph.	gr. ii		12

M. Ft. cap. No. i. Sig.: One such capsule after meals; or:

℞.	Strych. sulph.	gr. ¼		015
	Liq. ferri et ammon. acetat.	℥vi	180	

M. Sig.: One tablespoonful in water after meals.

Pruritus.

The following outline of treatment is recommended by *Med. News*, in pruritis: Internally carbolic acid is recommended in one-grain (.06) doses, or the following:

℞.	Ammon. valerianatis	gr. viiss		50

M. Ft. pil. No. i. Sig.: From two to three such pills daily.

Locally the following may be used:

℞.	Acidi hydrocyanici	gr. viiss		50
	Hydrarg. bichloridi	gr. viiss		50
	Acidi carbol.	ʒii	8	
	Resorcini	ʒii	8	
	Chloralis hydratis	ʒiii	12	
	Pot. bromidi	ʒiv	15	
	Aquæ	Oii	1000	

M. Sig.: To be applied locally.

Alcoholic solutions of menthol, resorcin or corrosive sublimate are equally as efficacious. After bathing the parts the following powder should be applied:

℞.	Pulv. amyli	℥iii	90	
	Bismuthi subnit	ʒi-vi	4.-24	
	Acidi salicylici	gr. xv	1	

M. Sig.: To be applied locally; or:

℞.	Cocainæ hydrochlor.	gr. v		30
	Menthol.	gr. xlv	3	
	Liq. petrolati	℥i	30	

M. Ft. unguentum. Sig.: Apply locally.

In cases of genito-perineal pruritus, fissures and excoriations, parasites, discharges, diabetes and albuminuria should be searched for. In vaginal itching the following is recommended:

℞.	Cocainæ hydrochlor.			
	Morph. hydrochlor., āā	gr. 1/3-1/2		02-.03
	Ol. theobromæ	gr. xlv	3	

M. Ft suppos. No. i. Sig.: One introduced into the vagina night and morning.

Medicolegal.

Insanity of Relatives of Maker of Will.—The First Appellate Division of the Supreme Court of New York says, in the will contest case of Pringle vs. Burroughs, that it is of opinion that, before insanity can be shown to have existed in the membership of a testator's family it must have appeared that to some extent, at least, the testator had suffered from a like affliction. Then, undoubtedly, evidence of the existence of insanity, especially if of a hereditary character, in the ancestors or other relatives of the testator, would be pertinent and competent. Mere feebleness of health produced by disease, however, is not a sufficient basis on which to found the right of inquiry into the mental condition of other relatives.

Entitled to Show Rebreaking of Leg—Value of Services.—The Supreme Court of Kansas holds, in Cudahy Packing Co. vs. Broadbent, a personal injury case brought by the latter party, that, under an allegation in the plaintiff's petition that an injury of which he complained had resulted in bruising, maiming and injuring him, and causing him to become sick and sore, and fracturing his left leg, thereby causing him great bodily pain and mental anguish, proof might be received that eight days after the happening of the accident, and after the leg was first set, it became necessary to rebreak the uniting bones and reset the same, thereby causing the plaintiff pain. The court says that in pleading the character of an injury it is not necessary to give a specific catalogue of every incident or subordinate result flowing therefrom in order to introduce proof of such results, but the pleading of such injury will permit proof of all results which naturally and proximately ensue therefrom. The general rule is that the pleading of an injury inflicted will admit proof of all results which naturally and approximately ensue or may reasonably be expected to result therefrom. The employment of a surgeon to set the broken leg was certainly such a result. That the surgeon might make a mistake in so doing might reasonably be anticipated, as mistakes occur under the manipulation of the most skillful. Even had an unskillful surgeon been employed, without fault on the part of the plaintiff, and a misalignment made by such unskillful surgeon, still the court is of the opinion that the general allegations of the petition would have been sufficient to admit the criticised proof, especially in the absence of any counter allegations in the answer. Furthermore, the court holds that evidence showing in a general way that surgeons and nurses had bestowed considerable time and attention on the plaintiff, without in any manner showing the value of such services, did not alone afford sufficient basis for a verdict for such services. A verdict rendered on such evidence ought to be set aside. It would be the veriest speculation, and entirely unwarranted, to permit a jury to find the value of those services from the statement that such services were rendered, accompanied by something of a detailed statement of their nature and extent. How could the jury, unskilled in such matters, be thereby sufficiently informed as to value to warrant the rendition of a verdict?

What Constitutes "Last Sickness."—The statute of Kansas provides that a verbal will may be made "in the last sickness" of the testator. How should the phrase, "in the last sickness" be construed? The Supreme Court of Kansas says, in the case of Baird vs. Baird, that it must mean that the making of a will must be at some time during the progress of the sickness from which the testator finally dies. If he should recover from the sickness which he had when he spoke the words, the will would be void. The court thinks it equally clear that the term should not be construed to cover a period of long duration, or make valid a will pronounced at a time when the testator was neither in danger of approaching death nor expecting death within a short time. In one view, "in the last sickness" might be construed to mean all of that period during which the deceased was in any way afflicted with the disease which finally terminated fatally, but this construction does not recommend itself, for perhaps, actually considered, the seeds of the fatal disease were carried even from the cradle. In another view, "in the last sickness" may be interpreted as the last end of the fatal sickness, because it is of the augmented force of accumulating disease that finally and lastly the diseased one is removed. The court thinks this latter interpretation equally unreasonable and untenable. For, if this should be adopted, we would be left without any guide whatever. "Last sickness" in this view must mean the last expiring breath, the condition that immediately antedates dissolution—that condition indicated by the term *in extremis* or *in articulo mortis*, or being surprised by sudden death. If this construction be adopted, then the right to make a verbal will is practically denied, for if a testator must wait until he is *in articulo mortis*, then he may have lost testamentary capacity, and when he has lost testamentary capacity he can not make a will. At best, the question of the validity of the will because made too soon, or of testamentary capacity because made too late, would be the occasion of serious conflict in every case. The court can not believe that either of these extreme claims are founded in reason, but rather prefers to hold that the proper interpretation of the statute is that, where the "last sickness" of one has progressed to such a point that the deceased expects death at any time and is liable to die at any time, and in view of its occurrence, and as preparatory thereto, a verbal will is made, and he does thereafter die of such disease, such will is "made in the last sickness."

Liability of Dentist Advising Against Seeing Physician.—The Supreme Court of California says, in Mernin vs. Cory, an action for malpractice against a dentist, that the jury were instructed as follows: "If you find from the evidence that defendant advised plaintiff not to consult a surgeon or secure medical treatment after her jaw was injured by defendant, if you find the same was carelessly and negligently injured by defendant, and that plaintiff relied thereon, and did not consult a physician or surgeon for a number of weeks after such injury, and that by reason of such delay plaintiff's injuries were aggravated and made worse, and that it was more difficult or impossible to treat or cure such injuries of plaintiff, and that thereby such injuries became and are permanent and can not be cured, and the same has affected the general health of plaintiff, and she has become and is sick and disordered and unable to work or perform labor, or support herself by her own labor and work as she did prior to such injuries, if you find that she did so work and support herself before she was injured by defendant—then I instruct you that you may take all such matters into consideration in fixing the damage incurred by plaintiff by such acts." It was contended that this instruction was erroneous, because it was not the duty of the defendant, being merely a dentist and not a general physician or surgeon, to give the kind of advice asked by the plaintiff. But the Supreme Court does not think that this contention was maintainable. It says that while a dentist may be qualified for his profession without being learned in the general science of therapeutics he certainly should have such knowledge of the very bone out of which he extracts a tooth as to enable him to understand whether it had been so injured as to require treatment beyond his skill. As to the contention that the instruction was erroneous because it did not expressly state that the advice was carelessly or unskillfully given the court says that other instructions that were given clearly informed the jury that carelessness or unskillfulness must have attended all the alleged acts of the defendant in order to make him liable, and there was no necessity of repeating them at every part of the instructions. Moreover, if the facts stated showed malpractice, the use of adjectives or adverbs to expressly characterize such malpractice as careless or unskillful would add nothing to the statement. After the alleged acts of malpractice the plaintiff had a "popping" or "clicking" of the jaw—a disagreeable sound made by a movement of the jaw. The defendant offered to call several witnesses to testify that each of them had a clicking jaw. The court does not think that it was error to sustain an objection to the proposed testimony.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 4.

1 *Mucous Colic. Robert Coleman Kemp, New York City.
2 New Views of Infant Feeding and Their Practical Application. H. D. Chapin, New York.
3 *Mortality of Pneumonia in High Altitudes. C. F. Kieffer, Fort D. A. Russell, Wyo.
4 Landry's Paralysis, with Report of Case. C. F. Wiley, Syracuse, N. Y.
5 *Case of Puerperal Tetanus with Recovery. J. F. Roderer, Philadelphia.
6 Poisoning by Potassium Bichromate. F. E. Fronczak, Buffalo.
7 City Dust and Patent Medicine Advertisements. R. Hessler, Logansport, Ind.

1. **Mucous Colic.**—Under this title, Kemp discusses the condition commonly referred to as mucous or membranous colitis. He does not believe that neurasthenia *per se* will cause mucous colic any more than it will cause gonorrhea. There must be other factors. Mucous colic probably has as its chief etiologic factor ptosis of the colon with associated gastroptosis. The misplacement of the colon undoubtedly favors circulatory, and hence secretory, changes in the sacculated portion of the colon. Fecal accumulation is also favored—a further cause of irritation. Absorption, with resulting autoinfection and nervous disturbances following the same, can thus readily result. Naturally a patient of nervous temperament may be more markedly affected than others. The treatment may be summarized as follows: During the attack, rest in bed; application of heat to the abdomen by means of flaxseed poultices, turpentine stupes or hot pepper poultices, 4 grams of red pepper to one pint of boiling water—a flannel being wrung out therein, applied to the abdomen and covered with oiled silk. Dry heat, applied by means of a hot-water bag, salt bag, or light tin plate, heated in the oven and covered with flannel, may be employed. Spice poultices are of service. Moist heat, however, seems to afford the most relief. The greatest relief to cramps and bearing down pains is afforded by enteroclysis with normal saline solution at 110 to 120 F., oil of peppermint, .3 c.c. to 1 c.c. to the quart, may be added. Several gallons should be employed once or twice in twenty-four hours, and no fluid should be left in the bowel after irrigation. High enemas of warm olive oil, a pint to a quart, are also of service. Hot saline injections containing from 2 to 4 ounces of milk of asafetida may also be employed. A fluid diet should be enjoined. Tincture of belladonna in doses of 10 drops, every three or four hours, gives the best results in the treatment of the spasm. If the pain is very severe, codein or morphin may be given. If the acute attack is prolonged, the internal administration of the valerianates or of asafetida may prove to be of value. Between attacks apply proper abdominal support, exerting an upward and backward pressure from the symphysis to the umbilicus by mechanical means. For this purpose may be applied a silk elastic abdominal supporter or Rose's adhesive plaster belt. The surface should be shaved or cleaned with alcohol or ether before applying the belt. Every four to six weeks the plaster is removed, the surface cleaned and a fresh plaster applied. Exercise and outdoor life, to strengthen the abdominal muscles, are important. The general nervous system must be toned up and anemia should be corrected. Resort to surgery is rarely required except in the most obstinate cases.

3. **Mortality of Pneumonia.**—Pneumonia, occurring at an elevation of 6,195 feet above the sea level, was studied by Kieffer with a view to ascertaining the effect of altitude on the mortality in this disease. So far as his observations go they seem to show that altitude has very little influence, if any, on the mortality of pneumonia, either to diminish or increase it. During thirty-six years the mortality at Fort Russell has been about 1 per cent. lower than the mortality of the entire army during the same period, the mortality percentages being 14.63 per cent. and 15.61 per cent. respectively.

5. **Puerperal Tetanus.**—In the case reported by Roderer, the first symptoms of tetanus appeared ten days after confinement. During the first four or five days of the disease all the spasms were severe and were accompanied by intense pain. Tetanus antitoxin was administered on 32 different occasions. In all 660 c.c. (132,000,000 immunizing units) were given. The injections were given under the skin of the abdomen and the sides of the thorax. After each injection a change in the character and number of the convulsions could be noticed. The duration of the disease was eighteen days, the patient making a good recovery.

Medical News, New York.

March 4.

8 Equilibrium Between Infection and Immunity as Illustrated in the Tonsillar Crypt. J. Wright, New York.
9 *Multiple Neuritis in Wood Alcohol Poisoning. S. E. Jelliffe, New York.
10 *Appendicitis as a Visceral Manifestation of Erythema Exudativum Multiforme. J. S. Chenoweth, Louisville, Ky.
11 Short and Easy Methods of Arriving at Good Results in Diseases of the Ear and Upper Air Tract, Illustrated by Recent Cases. W. S. Bryant, New York.
12 *Diagnosis of Malaria by the Finding of Pigmented White Corpuscles in Unstained Blood Films. J. R. Clemens, St. Louis.
13 *Psammoma of the Maxillary Sinus. J. C. Munro, Boston.

9. **Multiple Neuritis in Wood Alcohol Poisoning.**—Jelliffe cites two cases of peripheral neuritis resulting from the use of wood alcohol. The first patient began to suffer from severe gastric irritability and marked hyperesthesia in the upper extremities, particularly in both arms and hands. This was followed by incomplete paralysis of the extensors and typical drop-wrist. He also had a mild grade of ptosis and a partial, restricted amblyopia. He recovered after four months' treatment. All other causes of neuritis were eliminated. The man was addicted to the use of what he supposed was tax-free whisky, but on investigation it was found to be a 35 per cent. Columbian spirits whisky, with suitable flavor added. The two other patients were painters, particularly varnishers. They did nothing but shellac work on desks, furniture, etc., and they worked long hours and in comparatively small rooms. The shellacs they used were for the most part dissolved in wood alcohol, and the men were exposed to the evaporating fumes. Both these patients suffered from a hyperesthetic form of the disease. Involvement was also of the upper extremities alone. There were the familiar paresthesiæ in the backs of the hands and in the forearms. The pains were at times severe, and there was intense pain on pressure over the nerve trunks. The joints were involved to a slight extent only. There was distinct motor weakness in both instances.

10. **Appendicitis as a Visceral Manifestation of Erythema Exudativum Multiforme.**—Attention is directed by Chenoweth to the occurrence of appendicitis as a visceral lesion in this form of erythema, and he refers to two cases reported by him eight years ago in which the appendicitis occurred in connection with this disease. The matter of diagnosis is one of grave importance. The attacks of colic, the so-called abdominal crisis of exudative erythema, may easily lead the inexperienced to make a diagnosis of appendicitis when no lesion of that organism exists; on the other hand, a more serious mistake may be made of overlooking the coexisting appendix trouble, unless it is recognized that these vasomotor circulatory disturbances do at times result in congestion of, and even hemorrhage into, the appendix, with the result that there may be bacterial infection and inflammation or actual gangrene of this organ. The diagnosis of appendicitis in these cases must rest on the classical signs, pain, tenderness over the appendix, and localized muscular rigidity. In Chenoweth's experience the abdominal crises of exudative erythema have not been attended by muscular rigidity and localized tenderness, except in those cases in which the appendix was involved. The pathologic condition in the appendix in 4 patients operated on by him was primarily and essentially the same as that taking place in the skin. That the erythema was not secondary to the appendicitis was clear from the fact that previous attacks of erythema had occurred and have occurred at intervals since the removal of the appendix.

12. **Diagnosis of Malaria.**—That the finding of pigmented white corpuscles is absolutely pathognomonic of malaria is attested to by Clemens. He has examined over 500 unstained blood films in which pigmented white cells were found, and says he has never had occasion to regret the diagnosis made in each case—malaria. The finding of these pigmented cells is a far more constant index of malaria than the presence of the plasmodium, because the pigmented cells are found always, irrespective of the time of sporulation or of the action of quinin, whereas the plasmodium is often absent, influenced by quinin and the time at which the blood is taken. The examination of unstained specimens possesses the further advantages of celerity and simplicity of technic and the recognition of unstained pigmented cells is infinitely more easy than that of the plasmodium in stained specimens. He has also found that the pigmented whites are trusty guides in all manner of irregular malarial attacks masquerading under the guise of typhoid, rheumatism, appendicitis, acute diarrheas, gastric crisis, vomiting, etc.

13. **Psammoma of Maxillary Sinus.**—A case of probable psammo-sarcoma of the orbit and antrum of Highmore is cited by Munro. According to the statements of the patient, a female, about 20 years old, the first symptom, prominence of the eye, was noted about seven years ago. This gradually became more marked, but there was no pain and vision was not interfered with. A modified Kroenlein's operation for exposing the orbit was carried out and the tumor removed, in large part by curettage. A second operation was found necessary about two months afterward when the anterior wall of the upper jaw was removed up to the infraorbital foramen. Microscopic examination of some of the tumor tissue which had been decalcified showed calcareous bodies separated by tissue consisting of very closely packed, long spindle-cells, with little or no intracellular fibrillar substance. A diagnosis was made of psammoma of peculiar type, which possibly should be classed as sarcoma. The result of the operative treatment was eminently satisfactory. There was no evidence of return of the growth sixteen months after the first operation, but the result in restoration of the globe to its normal position was a disappointment.

New York Medical Journal.

March 4.

14 *Surgical Treatment of Hemorrhoids. Charles McBurney, New York.
15 *High-Frequency, High-Potential Currents, and *X*-Radiations in the Treatment of Epilepsy. Samuel G. Tracy, New York.
16 Open-Air Treatment at Home for Tuberculous Patients, with a Description of a Window Tent and a Half Tent. S. A. Knopf and W. B. McLaughlin, New York.
17 Resection of Gangrenous Intestine Due to a Volvulus Following a Second Attack of Appendicitis. Intestinal Obstruction Caused by Unoperated on Appendicitis. (Concluded.) Clarence A. McWilliams, New York.
18 *Retarded Development of Speech in Young Children. G. Hudson-Makuen, Philadelphia.
19 Active and Passive Exercise in the Treatment of Syphilis. Nathan T. Beers, Brooklyn.
20 *Two Cases of Cured Graves' Disease. Gerald B. Webb, Colorado Springs.
21 Uremia with Pericarditis; Clinical and Pathologic Reports. Henry S. Wieder, Philadelphia, and Harold L. Springer, Wilmington, Del.

14. **Treatment of Hemorrhoids.**—A study of the literature and clinical results obtained from various operations has convinced McBurney that operations on hemorrhoids, as frequently practiced, are open to improvement. Very painful external hemorrhoids are frequently produced or suddenly aggravated by an irritable contracted sphincter and in these cases dilatation of the sphincter under general anesthesia will often effect a satisfactory cure. If palliative measures are not sufficient to produce a cure in a case of internal hemorrhoids, operation is clearly indicated. The injection method is undesirable because it not infrequently results in suppuration or sloughing. The clamp and cautery method has no distinct advantages which outweigh its disadvantages. Occasionally, for the treatment of one or two single dilated hemorrhoidal veins, or very small vascular nodules, or in cases where hemorrhoids are alread [illegible] the cautery is convenient. Whitehead's operation has far too frequently resulted in prolonged ulceration, and in most intractable stricture, to be recommended under any circumstances. The operation preferred by McBurney originated in Allingham's operation. With the patient in the lithotomy position the sphincter is gently but thoroughly stretched and the rectum irrigated with some warm salt solution. The hemorrhoid is grasped with a tight clamp from side to side, lifted from its attached aspect and with a knife an incision is made on either side of the tumor, parallel with its long axis, through the mucous membrane above and the skin below. The two incisions should meet at a very acute angle below and should invade the skin only enough to make this angle and to avoid producing an awkward fold. The tumor is then dissected up with the knife or with straight, sharp scissors, the dissection including the vessels of the hemorrhoid, but no more surrounding tissue than is necessary. The incisions and plane of dissection should converge toward the same point above, until the remaining attachment of the tumor is reduced to a small pedicle which contains the principal artery of supply and emergent veins. At the highest part of this pedicle a catgut ligature is tightly tied about it. All bleeding points must be tied or twisted. The wound is then sutured with a continuous suture of No. 1 catgut, beginning at the lower end, until the base of the pedicle is reached, when the suture is tied. The hemorrhoid may now be cut away just below, but not too near the ligature on the pedicle. As a rule, not more than two good sized hemorrhoids can be removed at one sitting without taking away an undue amount of mucous membrane. Cleanse the field of operation and introduce a suppository containing 1 grain of opium or 1/6 grain of morphin. The dressing is important if edema of the lower angle of the wounds, pain, and delay in healing are to be avoided. No food is given until the following day. Defecation should be deferred until the sixth or seventh day. Tubing introduced as part of the dressing is entirely unnecessary. McBurney claims for this operation that it is absolutely safe; that it is radical; that neither ulceration nor stenosis ever result from it; that convalescence is painless, and that cure is obtained with a minimum loss of time.

15. **Treatment of Epilepsy.**—Decidedly beneficial and curative effects have been obtained by Tracy from the treatment of epilepsy with high-frequency currents combined with *x*-radiations. In some cases he combined with this the administration of from 15 to 60 grains of sodium bromid a day. All cases were treated in much the same manner. Those of more than three years' standing gave the best results when the high-frequency current and the *x*-radiations were combined with small doses of sodium bromid, in females, doubling or trebling the amount of bromid just before and during the menstrual period. All reflex irritative disturbances should first be eliminated, and in using high frequency, high-potential currents, it is not necessary to refrain from employing any or all old-time remedies which have been found to afford even temporary relief. As a rule, each patient is treated every other day, first receiving *x*-radiations from five to ten minutes from a high tube placed from six to ten inches above the head so that the rays strike directly on the anterior and occipital part of the brain. After the *x*-radiation the patient is subjected to the influence of a high-frequency current, applied over the brain for ten minutes and for five minutes over the spine. As a result of the use of the combined method Tracy says that at least 25 per cent. of the petit mal patients may be considered tentatively cured, and the same may be said of 20 per cent. of the patients suffering from Jacksonian epilepsy, and 12 per cent. of the grand mal patients. All cases will improve more or less, not only in regard to the frequency of the epileptic seizure, but also in regard to severity. In addition to this the mental and physical condition was very much improved. Tracy suggests that it is possible that the high-frequency currents have some chemical effect on the bromid, possibly liberating a larger quantity of the bromin as the solution of the salt circulates in the brain and

thus the drug in smaller quantities has a more pronounced therapeutic effect in controlling the epileptic seizures.

18. **Retarded Development of Speech.**—Makuen says that retarded development of speech in young children may be the result of structural irregularities in the peripheral organs, impaired respiration, due to nasal, post-nasal and pharyngeal obstructions, paresis of the nerves supplying the organs of speech, and not infrequently to some disturbance of hearing not necessarily amounting to absolute deafness. Retarded development of speech always results in defective mentality. The treatment consists in the removal of obstructions in the peripheral organs and in the systematic training of the auditory and speech centers by the use of specially prepared vocal exercises.

20. **Cure of Graves' Disease.**—Webb reports two cases which were cured by what he terms the "recreation nerve cure." It consists in re-establishing the mental equilibrium of the patient, and Webb achieves this by instructing the patient to recite every day, at certain hours, some simple poem, which is to be memorized. This treatment is based on the theory that Graves' disease is the result of nervous exhaustion and escape of nervous energy.

Medical Record, New York.

March 4.

22 Digestion of Caseins, and Its Relation to Certain Problems in Infant Feeding. Thomas S. Southworth, New York.
23 *Fifteen Cases of Erysipelas Treated by Injections of Antistreptococcus Serum. J. C. Ayer, New York.
24 *Chronic Rheumatism, Gout and Other Uric-Acid Diatheses Treated by the X-ray, High-Frequency Currents and Vibratory Massage. Sinclair Tousey, New York.
25 *Prosthetic Treatment of Fracture of the Mandible. Francis A. Faught, Philadelphia.
26 Acute Intussusception in an Infant; Resection of Gangrenous Intussusceptum; Murphy Button Anastomosis; Recovery. Edward W. Peterson, New York.

23. **Erysipelas Treated with Antistreptococcus Serum.**—Ayer cites 15 cases of erysipelas treated by injections of antistreptococcus serum, with no mortality. He found that the serum shortens the course of an uncomplicated attack of erysipelas considerably, and also tends to inhibit the extension of the disease. It has a strikingly beneficial effect on the general condition of the patient, reducing the temperature, pain and discomfort. The febrile albuminuria is prevented or suppressed, and leucocytosis is reduced rapidly. The administration of large doses is not attended by any bad effects. The only disagreeable symptom observed by him was a transient eruption which occasionally occurs at the site of the injection. The initial dose in 6 reported cases was 20 c.c., followed by doses of 10 c.c., as often as necessary. The efficacy of the serum is in direct ratio to the length of time which has elapsed between the onset of the disease and the first injection of serum. Frequently within a few hours after the first injection the swelling becomes less marked and desquamation begins to be apparent. The decrease in the violence of the local conditions goes hand in hand with the constitutional improvement.

24. **Electrotherapy and Vibratory Massage in Uric Acid Diatheses.**—The so-called uric acid technic of Tousey consists in the application of vibratory massage over the abdomen and up and down the spine for about ten minutes twice a week, and the application of high-frequency currents on the same days, for about fifteen minutes, over the abdomen, up and down the spine, and over the affected joints and nerves. The *x*-ray has been applied only locally in cases of palpable deposit about a joint or nerve of a nature which has been found resistant to the other applications. The use of the *x*-ray does not form a part of Tousey's technic, but he has found it a most valuable adjunct in occasional cases. The apparatus employed is an eight or twelve-inch coil run by the direct 110-volt electric-lighting current, either with an electrolytic interrupter or a Wehnelt interrupter in which there is a large jar containing dilute sulphuric acid in which one lead electrode rests, the other electrode terminating in a platinum point surrounded by a porcelain tube beyond which a greater or less length of the platinum point may be protruded. For these rheumatic or gouty deposits the vacuum in the *x*-ray tube is regulated so that the resistance in the tube will back up a spark of three inches. The tube distance is nine inches; the time of exposure from three to five minutes twice a week. The effect is anodyne and resolvent.

25. **Treatment of Fracture of the Mandible.**—Faught condemns the use of the upper teeth as a splint and guide for maintaining the fragments in place with the aid of a bandage except in special cases, on the ground that it greatly limits the motion of the jaws and dooms the patient to a soft diet and to speechlessness for a period of five or six weeks. The commonly used metal or vulcanite interdental splint is open to the same objection. The continued use for any length of time of a fixation bandage passing around the front of the chin may result in positive and permanent harm. The metallic cap splint, on the other hand, affords a certain and effective means of securing fixation, while possessing none of the objectionable features of other fixtures. The splint can be constructed and cemented into place in a few hours. The splint is swaged between die and couter-die, made from carefully prepared impressions, and may be made of gold, platinum, silver or German silver. Such a splint, if carefully constructed and inserted, will remain firmly in place until it ceases to be of service and is removed from the mouth prior to the dismissal of the patient. The splint introduces the least amount of foreign substances into the mouth and is contained entirely within the mouth, thus reducing the patient's discomfort to a minimum, at the same time affording a rigid support for the fractured bone, while permitting of free movement of the mandible with easy access to the oral cavity.

Boston Medical and Surgical Journal.

March 2.

28 *Certain Aspects of Bile Duct Disease. James G. Mumford, Boston.
29 *Importance of Considering Ptosis of Other Organs in the Treatment of the Kidney. M. T. Smithwick, Boston.
30 *Treatment of Ptosis of Abdominal Organs by Abdominal Supporters. William H. Smith, Boston.
31 *Actual Results at the Massachusetts General Hospital Following Operative Treatment of Ptosis of the Abdominal Organs, with Special Reference to the Kidney. F. G. Balch and J. R. Torbert, Boston.
32 Results of Surgical Treatment of Movable Kidney at the Boston City Hospital. Paul Thorndike and L R. G. Crandon, Boston.

28. **Aspects of Bile Duct Disease.**—The removal of all stones is advised by Mumford. If left behind they are very sure to cause subsequent disturbance, whereas, after the thorough removal of stones their recurrence is almost unknown. It is also essential to remove, as far as possible, all disorganized, degenerated and permanently crippled tissue, for such tissue, when left behind, may become the nidus for subsequent inflammation, stone formation and a return of the original trouble. Drainage must be provided for, because drainage of the ducts serves to carry off infectious material. Drainage in such cases is as essential as is drainage for pleural empyema.

29. **Splanchnoptosis and Nephroptosis.**—That these two conditions are frequently associated is shown by Smithwick. In 68 patients the right kidney was down in all, the left kidney in 20 per cent., the stomach in 62 per cent., the colon in 62 per cent., and the liver in 7 per cent. In 34 of the 57 females a pelvic examination was made and it was found that there was a marked ptosis of the uterus in some direction in 80 per cent. In no case did a kidney seem to interfere with other organs by pressure. The urine showed no serious disturbance of the renal functions in any case. Smithwick points out the association of ptoses and that several cases with marked ptosis of both kidneys showed no symptoms referable to this condition. Furthermore, he points out that it is impossible to distinguish the neurasthenic symptoms said to be typical of nephroptosis from those met with in other conditions.

30. **Abdominal Supporters in Splanchnoptosis.**—This phase of the subject has been gone into to some extent by Smith. He says that without the intelligent co-operation of both patient

and physician little benefit will follow the use of abdominal supporters. Where this co-operation can be secured and a properly fitted belt is made and properly worn, relief is to be obtained in certain cases, especially of nephroptosis with Dietl's crises. He believes that in some cases this relief will be permanent. His experience is limited to two kinds of abdominal supporters in two classes of cases, the first the ordinary unpadded abdominal band, the second the accurately fitted, padded, corset-like belt. The two classes of cases treated have been simple nephroptosis with or without Dietl's crises, and nephroptosis with gastroptosis. The ordinary unpadded *abdominal supporter has proven of little value except* in cases of marked diastasis of the recti muscles; with the corset-like padded belt better results have been obtained.

31. **Results Following Operative Treatment of Nephroptosis.**—Balch and Torbert report on the results obtained at the Massachusetts General Hospital from operation on movable kidney between 1890 and 1904. Of the total 92 cases 86 were *females and 6 males. Of the females 61 were married and* 25 were single. Pregnancy was given as a starting point in 33 cases, trauma in 10, and in 49 cases the cause was not known. Of these 49, 25 were married and 24 were single. Seventeen patients had other operations beside the nephropexy done at the same time. There was sepsis in 8 cases, and urinary symptoms in 22. Of the total number of patients 28 were relieved, 13 were not benefited by the operation and 51 had not been heard from. Balch has had 7 cases in his own practice, and his results lead him to believe that in outside practice, where one can choose the cases for operation and for supporters, and where one can be sure of a sufficiently long period of rest afterward, the results are much better than in hospital work.

Lancet-Clinic, Cincinnati.

March 4.

33 Report on Operative Work in the Ureter Through the Author's Catheterizing and Operative Cystoscopes. Bransford Lewis, St. Louis.
34 Medical Aspects of Gastroduodenal Ulcers. Louis A. Levison, Toledo, Ohio.

Annals of Otology, Rhinology and Laryngology, St. Louis.

December.

35 Necessity for the *Obligatory Teaching of Otology* in Medical Schools. A. Politzer, Vienna.
36 *Mucin in Atrophic Conditions of the Nose and Throat. J. E. Newcombe, New York.
37 *Electrolysis of the Eustachian Tube. T. J. Harris, New York.
38 Psychic Element in Deafness. Boulay and Hadour.
39 Acute Otitis Media Due to Influenza Bacillus. G. M. Didsbury, Paris.
40 Examination of Ears of Railway Engineers and Firemen in Relation to the Length of Service and the Fuel Employed in Roumania. M. Costiniu.
41 Necessity for *Obligatory Instruction* in *Otology* in the University. G. Gradenigo.
42 *Osteoplastic Operations on Frontal Sinuses for Chronic Suppuration. R. Hoffman.
43 Obliteration of the Pharyngeal Orifice of the Eustachian Tube, Coexistent with Annular Stenosis of the Epipharyngeal Isthmus. J. Molinie, Marseilles.
44 Bougiage of the Eustachian Tube. C. J. Koenig, Paris.
45 Lucae's Spring-sound, Paraffin. C. J. Koenig.
46 Modification of Eustachian Catheter so as to Facilitate the Return of Effusions in the Middle Ear. C. J. Koenig.
47 Purulent *Pial Meningitis Following* Acute Middle Ear Disease. J. H. Claiborne, New York.
48 Removal of the Middle Turbinal. B. R. Kennon, Norfolk, Va.
49 Special Syndrome of Endocranial Otitic Complications. G. Gradinego.
50 Associated Otomycoses. L. Bar, Nice.

36. **Mucin in Atrophic Conditions of Nose and Throat.**—Attention is called by Newcombe to some of the properties and uses of mucin as a therapeutic agent. He states that mucin artificially applied to the nose and pharynx has a soothing and emolient action, moistens the surface and softens incrustations, readily facilitating their removal and preventing their reformation. Mucin solutions obviate fetor, and by their hygroscopic action, which is about one-fourth as great as that of glycerin, they tend to restore the function of smell, and favor the filtering and warming functions. Combined with an alkali the solutions neutralize the acid often found in atrophic rhinitis.

37. **Electrolysis of Eusta[illegible]chian Tube.**—Harris details his further experiences [illegible] electrobougie. He says that there is a certain degree of value in the method as described by Duel in a relatively small number of cases, notwithstanding that in the hands of many operators it has proved disappointing. The method has shown itself to be attended with no small degree of danger, and accordingly should be employed only after every other means of establishing the patency of the eustachian tube has been tried. The most scrupulous attention to antisepsis is essential and the greatest gentleness as regards current and touch. Not every one who provides himself with the apparatus is competent to carry out this procedure. It requires the manipulation and skill of an expert. Many of the temporary beneficial results that have been attained are due to galvanism and not to electrolysis.

42. **Osteoplastic Operations on Frontal Sinuses.**—Wherever there is no disease of the bony walls of the frontal sinus, says Hoffman, the osteoplastic method of treating chronic frontal sinusitis is to be preferred, since it satisfies all the indications; *that is, a survey of the sinus is thereby obtained*, and the treatment of the ethmoid can also be carried out, and, therefore, all diseased tissue can be thoroughly removed, while, at the same time, the cosmetic result is good. In using it, care must be taken that the replaced bony flap everywhere rests on the surrounding bone, in order to get good cosmetic results and to prevent the formation of recesses that delay healing. The connection of the unobliterated cavity with the nose must remain a wide one, as this is the *surest guarantee against retention* of secretions during healing and against reinfection.

Therapeutic Gazette, Detroit.

February 15.

51 *Bisulphate of Soda in Typhoid. J. E. Cannaday, Paint Creek, W. Va.
52 Pernicious Vomiting of Seven Years' Duration Cured by Suspension of the Kidney. G. E. Shoemaker, Philadelphia.
53 Rest as a Curative Agent. G. Wehrle, El Paso, Texas.
54 Antitoxin Rashes. F. A. Sutcliff, Philadelphia.
55 Differentiation and Treatment of Eye Diseases Most Commonly Seen by the General Practitioner. L. F. Love, Philadelphia.

51. **Bisulphate of Soda in Typhoid.**—The bisulphate of soda is used by Cannaday in the treatment of typhoid in the strength of 7½ gr. to the ounce of water, 2 ounces of this solution being given every three hours. It corresponds in acidity to the hydrochloric acid of the stomach, and hence, promotes digestion. The solution is not at all nauseous and patients, as a rule, do not object to the taste. In a series of 85 cases, the percentage of deaths was 8.02. Two of the deaths were directly due to peritonitis from perforation, one from erysipelas as a complication, while the other fatal cases were evidently due to the exhaustion and depression incident to the disease. In one of the *fatal cases, delirium was present when treatment was begun* and 2 others were not seen until the end of the second week. The average stay in the hospital was 27.08 days; average duration *of fever*, 14.06 days; *average period of convalescence*, 13.02 days. Complications were infrequent. Diarrhea and tympanites were uncommon.

Chicago Medical Recorder.

February 15.

56 Treatment of Pneumonia. F. S. Johnson, Chicago.
57 Physical Basis for Diagnosis in Pneumonia. R. H. Babcock, Chicago.
58 Observations on Influenza Pneumonia. C. L. Hobbs, Chicago.
59 *Regarding Vaccination. H. Spalding, Chicago.
60 Neglected Concomitants of Urethral Stricture. G. F. Lydston, Chicago.
61 Hypertrophy of the Faucial and Pharyngeal Tonsils in Children. Importance of and Necessity for Early Diagnosis *and Treatment*. T. M. Hardie, Chicago.
62 Ear Diseases Following the Acute Infections of Early Childhood. G. E. Shambaugh, Chicago.
63 Modified Alquie-Alexander-Adams Operation for the Cure of Retroversio-Flexion. H. E. Sauer, Chicago.

59. **Vaccination.**—Spalding, who has had quite an extensive experience with smallpox, makes some very interesting as well as important statements regarding vaccination. Attention is directed to two points in particular: First, the absolute certainty of protection from smallpox afforded by vaccination; second, the universal susceptibility of persons to vaccinia. He has never seen a case of smallpox in a person who had been vaccinated within nine years. During the last six years,

Chicago has had 1,441 cases of smallpox. Of this number 1,270 never had been vaccinated; 162 had some sort of a scar, said to be from a vaccination made in early life, and, with a single exception, not one of them had ever been re-vaccinated. During that time no vaccinated school child has been known to contract smallpox, and yet about one-fourth of the cases of smallpox were children, mostly unvaccinated, under the school age of six years. From 10 to 30 medical students from the various medical college have been visiting the Chicago Isolation Hospital weekly for the last four years. These students are taken into the wards, where they see smallpox in all stages of the disease, and are subjected to a prolonged exposure; not one of these students has contracted the disease. Speaking of the susceptibility of all persons to vaccinia, Spalding emphasizes the fact that in some cases it requires five, six, or ten attempts and states that in one instance, thirteen trials were made, before a typical vaccination was secured. Often the failure is due to inert lymph, and again, there is faulty technic in the operation. The procedure he advises is as follows: Sterilize the arm, throw the vaccine on the arm, and then, with a dull needle, go right through the drop of vaccine, and with slight pressure irritate and abrade the skin until it is red. Do not bring blood and do not remove the epithelium from a spot more than one-eighth of an inch in diameter. Make but one mark.

Journal of Infectious Diseases, Chicago.

March 1.

64 *Studies in the Frequency, Localization and Modes of Dissemination of Tuberculosis, with Special Reference to Its Occurrence in the Lymph Nodes and During Childhood. Francis Harbitz.
65 *Experimental Measles. Ludvig Hektoen, Chicago.
66 Trypanosomes of Birds. Frederick G. Novy and Ward J. MacNeal, Ann Arbor, Mich.
66½ Some Observations on the Biology of the Cholera Spirillum. William B. Wherry, Manila, P. I.
67 Amebas: Their Cultivation and Etiologic Significance. W. E. Musgrave and Moses T. Clegg, Manila.
67½ Studies on Hog Cholera. Charles T. McClintock, Charles H. Bozmeyer and J. J. Siffer.

64. **Lymph Node Tuberculosis.**—In a very exhaustive article on this subject, Harbitz attempts to show that pulmonary tuberculosis may be and often is secondary, and that the cause is then to be sought in tuberculous foci in other organs, but mainly in the lymph nodes, the infection of the lungs occurring most likely by way of the blood. He maintains, furthermore, that much more stress must be laid on primary infection through the digestive tract and on infection through the throat than has been done formerly. A number of very interesting and pointed clinical histories and autopsy reports are given in detail to prove the author's points.

65. **Experimental Measles.**—Hektoen reviews the results of the inoculation of measles as they appear in the literature and then records two experiments of his own from which he believes certain conclusions may be drawn. In these experiments special care was taken to exclude natural infection. The blood injected was taken from a boy of 9, who, in the later stages of desquamation after an uncomplicated attack of scarlet fever, developed a rather mild, but typical attack of measles. On the fourth day, 4 c.c. of blood were withdrawn from the vein of the right elbow, and two flasks containing 50 c.c. of ascites-broth (pepton broth, 2 parts; ascitic fluid heated to 55 C., for fifty-four minutes, 1 part) were inoculated at once with 1 and 3 c.c. of blood respectively, and placed in the incubator at 37 C. for twenty-four hours. Subcultures made at this time on ascites agar, glycerin agar, and Loeffler's serum, kept under aërobic and anaërobic conditions, remained sterile; and the contents of the flask of ascites-broth containing 1 c.c. of blood remained permanently sterile. Four c.c. of the flask of 50 c.c. of ascites-broth mixed with 3 c.c. of blood and kept in the incubator at 37 C. for twenty-four hours, were injected under the skin of the chest of a healthy man, 24 years old, just finishing desquamation after an uncomplicated attack of scarlet fever. So far as could be learned, this man had not had any disease at all resembling measles. At no time did any local symptoms appear at the sight of injections. On the thirteenth day, the temperature rose to 101, and on the fourteenth, immediately after taking a warm bath, a red, papular, blotchy eruption broke out on the forehead and spread quite rapidly to the face, neck and chest. The temperature remained above normal for two days, when it fell to normal about the same time that the unmistakably typical full-grown, rubeolous rash began to fade. An uneventful recovery promptly followed without any complications, the desquamation being branny. During the entire illness there was freedom from respiratory symptoms, and during the pre-eruptive period there were no special local symptoms (*Morbilli sine catarrho*). In the second experiment the blood was furnished by a girl, 21 years old, who passed through an uncomplicated attack of typical measles. About thirty hours after the earliest appearance of the rash which still was coming out on the extremities, 10 c.c. of blood were withdrawn and distributed equally among four flasks, each containing 50 c.c. of broth and 25 c.c. of ascites fluid. These flasks all remained perfectly sterile. After twenty-four hours, 5 c.c. of the mixture of blood and ascites-broth were injected subcutaneously in the back of a man who had not had measles. He, too, was recovering from a mild attack of scarlet fever. There were no local changes at the site of injection. On the eleventh day the temperature rose to 99.8 F., and the next day a mild conjunctivitis became definitely apparent. On the thirteenth day there was some cough, the tonsils were bright and red, and there was an increased amount of mucus in the throat. The temperature gradually rose to 103. During the next night a typical rubeolous eruption came out, the first spots being noticed on the nose and then on the forehead, face, scalp, chest, back and abdomen. The forehead was quite uniformly red. Recovery was prompt. Hektoen concludes that the virus of measles is present in the blood of patients with typical measles, sometime at least during the first thirty hours of the eruption. Furthermore, that the virus retains its virulence for at least twenty-four hours, when such blood is inoculated into ascites-broth and kept at 37 C.

Wisconsin Medical Journal, Milwaukee.

February.

68 Address of President of Medical Society of Milwaukee County. G. E. Seaman, Milwaukee.
69 Surgical Treatment of Ascites Due to Cirrhosis of the Liver. W. Mackie, Milwaukee.
70 Medical Ethics. J. L. Cleary, Kenosha.
71 Glimpse Into the Past, Present and Future of Therapeutics. S. E. [illegible], [illegible], Wis.

Old Dominion Journal, Richmond.

February.

72 Treatment of the Alimentary Canal Before and After Abdominal Section. I. S. Stone. Washington.
73 Metastasis from Cancers of the Breast. G. Baughman, Richmond.
74 Headaches from Eyestrain. C. M. Miller, Richmond.
75 Small Point in Therapeutics. C. W. Astrop, Surry, Va.
76 Is Gynecology a Specialty? C. R. Robbins, Richmond.

St. Paul Medical Journal, St. Paul.

February.

77 Diagnosis of Gallstone Disease. Based Upon the Clinical Histories of 1,000 Operated Cases. W. J. and C. H. Mayo, Rochester, Minn.
78 Nasal Deformities and Paraffin Prothesis. A. C. Heath, St. Paul.
79 Epilepsy a Public Menace. C. E. Riggs, St. Paul.
80 Symptoms Incident to Dentition. W. R. Ramsey, St. Paul.

Northwestern Lancet, Minneapolis.

February.

81 President's Annual Address to the Hennepin County Society. C. H. Hunter, Minneapolis.

Cleveland Medical Journal.

February.

82 Medical Inspection of Public Schools. Wm. S. Chase, Akron, Ohio.
83 Care of the Sick Poor by the Hospital and Dispensary. F. E. Bunts, Cleveland.
84 Care of the Sick Poor by the District Physician. L. W. Childs, Cleveland.
85 Care of the Sick Poor in Their Homes. M. Johnson, Cleveland.

New York State Journal of Medicine, New York City.

February.

86 Municipal Sewage. D. C. Moriarta, Saratoga Springs, N. Y.
87 Early Diagnosis and Treatment of Pulmonary Tuberculosis. J. J. Walsh.
88 Value of Transillumination of the Stomach as an Aid to Diagnosis. R. C. Kemp, New York.
89 Calculi in Blandin's and Submaxillary Glands—Report of Cases. H. Jarecky, New York.

Journal of Nervous and Mental Disease, New York.

February.

90 The Course of the Sensory Fibers in the Spinal Cord and Some Points in Spinal Localization Based on a Case of Section of the Cord. M. Prince, Boston.
91 Two Cases of Syphilitic Disease of the Cervical Spine. F. R. Fry, St. Louis.
92 Case of Trauma of the Foot of the Second Frontal Convolution, followed by Ataxia, Nystagmus and Epilepsy. F. X. Dercum, Philadelphia.

Indiana Medical Journal, Indianapolis.

February.

93 Medical Men and Medical Progress, Past, Present and Future. Wm. H. Wishard, Indianapolis.
94 Treatment of Intestinal Obstruction. J. C. Sexton, Rushville.
95 Educational Function of the Physician. F. S. Roby, Indianapolis.
96 The Obstetric Forceps. Garrett Pigman, Liberty.
97 Gastric Ulcer. George H. Grant, Richmond.
98 "Western Medicine." L. H. Dunning, Indianapolis.
99 Compound Tincture of Benzoin. E. J. Kempf, Jasper.

Journal of the Association of Military Surgeons, Carlisle, Pa.

February.

100 Medical Reserve Corps for the United States Army. Azel Ames.
101 Altitude and Expansion. P. M. Carrington, Fort Stanton, N. Mex.

Alienist and Neurologist, St. Louis.

February.

102 Erotomania. Case of Exhibitionism—A Medicolegal Study. D. S. Booth, St. Louis.
103 Outlines of Psychiatry in Clinical Lectures. C. Wernicke, Breslau.
104 Is Delusional Insanity Due to Disease of the Brain? J. W. Wherry, Clarinda, Iowa.
105 Does the Policy on the Victim of an Insane Homicide Beneficiary Become Void by the Homicide? An Analysis of the Paul Holtz Case. J. G. Kiernan, Chicago.
106 Chorea Insaniens. D. R. Brower, Chicago.
107 Mixoscopic Adolescent Survivals in Art, Literature and Pseudo-ethics. J. G. Kiernan, Chicago.

New Orleans Medical and Surgical Journal.

February.

108 Frequency of Multiple Sclerosis in Louisiana. Roy M. Van Wart, New Orleans.
109 Vaginal Cesarean Section; Report of a Case. C. Jeff Miller, New Orleans.

Brooklyn Medical Journal, Brooklyn, N. Y.

February.

110 Acute Tuberculous Pneumonia. W. Osler, Baltimore.
111 Case of Acute Septic Inflammation of the Throat and Neck, in which Edematous Swellings Were Dispersed by the Use of Adrenalin Chlorid. T. R. French.
112 Clinical Significance of the Tube Casts in the Urine. T. C. Craig.
113 Sterile Water Anesthesia in the Treatment of Hemorrhoids. M. L. Bodkin, Brooklyn.
114 The Diagnosis of Empyema in Children. J. W. Parrish.
115 Adenoids as a Cause of Deformities of Dental Arch. H. H. Young, Riverhead, L. I., N. Y.
116 Appendicitis with Diffuse Peritonitis. J. E. Jennings.
117 Case of Goiter. E. A. Parker.

Kentucky Medical Journal, Louisville.

February.

118 Normal Labor. J. M. Jennings, Tyrone, Ky.
119 Proximity and Position of Weapon in Gunshot Wounds as Estimated by External Appearances of Wound at Point of Entrance. J. K. W. Piper, Russellville, Ky.
120 Case of Typhoid with Sequelæ. J. H. Blackburn, Bowling Green, Ky.
121 Second Letter from Notes Taken on a Trip to the Pan-American Medical Association in the City of Mexico. D. G. Simmons, Adairville, Ky.
122 Postpartum Hemorrhage. W. M. Miller, Millersburg, Ky.
123 Simplicity in Surgical Methods. L. Frank, Louisville, Ky.

Atlanta Journal-Record of Medicine.

February.

124 Facts and Fallacies in Gastrointestianl Work. L. Amster, Atlanta, Ga.
125 Prostatic Massage. W. L. Champion, Atlanta, Ga.

Medical Herald, St. Joseph, Mo.

February.

126 Mental Inhibition, or the Relation of the Neuroses and Pre-Melancholias to the Divorce Court. S. G. Burnett, Kansas City, Mo.
127 Apoplexy. F. E. Coulter, Omaha, Neb.
128 Something About Cerebrospinal Meningitis. C. B. Hardin, Kansas City, Mo.

Albany Medical Annals.

February.

129 Symptomatology and Localization of Tumors of the Cerebellum. H. C. Gordinier, Albany.
130 Pathology of Brain Tumors. H. W. Carey.
131 Surgical Treatment of Brain Tumors. Arthur W. Elting.

Northwest Medicine, Seattle, Wash.

February.

132 American Contributions to Tropical Medicine. J. W. Amesse, Seattle.
133 Atypical and Modified Forms of Typhoid. C. J. Lynch, North Yakima, Wash.
134 Chronic Splenic Anemia with Report of a Case. E. F. Connyngham, Philipsburg, Mont.
135 Defects of Eyes, Ears, Noses and Throats in School Children. A. W. Hawley, Seattle.

Kansas City Medical Index-Lancet.

February.

136 Address, Kansas City Academy of Medicine. C. A. Ritter, Kansas City.
137 Importance of Rest in the Treatment of Acute Tuberculosis. B. F. Stevens, El Paso, Texas.
138 Remarks on Refraction. J. W. Kimberlin, Kansas City.
139 Pneumonia; Its Diagnosis and Treatment. R. W. Paris, Morrisville, Mo.
140 Influenza. R. P. Walker, Bolton, Mo.

Medicine, Detroit.

February.

141 Diagnosis of Perforation and Localization of Appendicular Abscess. C. G. Cumston, Boston.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The British Medical Journal, London.

February 18.

1 Hunterian Oration. John Tweedy.
2 *Visceroptosis; Symptoms and Treatment. H. A. MacCallum.
3 *Recurrent Vomiting in Children. H. B. Shaw and R. H. Trive.
4 *Id. F. Langmead.
5 Hematemesis and Melena in an Infant Two Days Old; Recovery. E. Morris and F. Feldman.
6 *Case of Long-standing Constipation. H. Grey.
7 *Ergot and Arsenic in Chorea. C. Riviere.

2. **Visceroptosis.**—McCallum lays great stress on feeding and massage in the treatment of this condition, on the basis that it is due to a weakened action of the abdominal walls. The superabundance of alimentation means the superabundance of materials that build up the nervous system. Massage promotes the stripping of the connective tissues of their lymph and the renewing of it, and thus makes the lymph pure and nutritious. By this interchange and removal of waste products from muscles, connective tissue and skin, and their daily discharge into the blood circulation, the external organs of excretion are enabled to keep the flow of lymph in a higher state of purity. Massage will build muscles, and in this disease the abdominal wall must be built up. If this is done, the levator ani and the diaphragm will bring themselves up to a state of tone to oppose the lower and upper zone of these muscles respectively. Massage helps the patients not only to get control of the lower neurons of the body, but likewise of the upper neurons. When the stomach is prolapsed, the muscular contractions of the abdominal wall are factors of the highest importance in emptying the stomach contents into the duodenum. No age with visceroptosis is barred from the benefits of this treatment.

3 and 4. **Recurrent Vomiting in Children.**—These two articles are discussions of the clinical history of this condition as presented by various authorities, with reports of illustrative cases.

6. **Long-Standing Constipation.**—For a period of eleven years, Grey's patient, a boy, aged 13½ years, had been accustomed to have an evacuation at intervals of from three to six weeks. On examination, the sphincter was found firmly contracted and the rectum was distended with a huge fecal mass, very hard and firm. The feces were removed by enemata of hot olive oil, thirty ounces twice a day, for nine days. Thereafter a suitable dietary, a pill of aloes and iron, four times a day, massage of the whole body, and especially of the abdominal muscles, and gymnastic exercises were ordered. The aloes and iron pills were gradually reduced in number until after three months only one a day was taken. In three weeks, again, this also was dropped, and the boy has been relieved of his trouble. The case is of interest because of the duration of the condition, the enormous amount of the retained material—29¾ pounds—practically a third of the body weight, and the satisfactory results of treatment.

7. Ergot and Arsenic in Chorea.—Riviere reports on the results obtained from the administration of ergot and arsenic in 35 cases of chorea. The ergot was given in doses of 1 to 1½ drams of the liquid extract, three times a day, with 2 minims of liquor strychniæ. These doses did not give rise to symptoms of poisoning, nor to any appreciable physiologic effects. About half of the patients were rapidly improved or cured by this means and most of the remainder improved when arsenic was substituted. That it is the drug treatment which was effectual in these cases is beyond question, because often when it was stopped a relapse occurred and the patient was again cured or improved by its re-administration. In 2 cases, the ergot treatment was ineffectual; arsenic made the patients worse, but on returning to ergot, they were immediately improved. This experience suggested to Riviere the advisability of trying ergot and arsenic in combination. The mixture used contained 1 dram of extract of ergot and 3 minims of liquor arsenicalis, these doses being increased as seemed desirable. There are few patients who remained unbenefited by this treatment; in the majority the improvement began at once. The unbenefited cases consist mainly of those violent choreas for which so little beyond isolation can be done. [Liquor strychninæ of the British pharmacopeia consists of 1 grain of strychnin sulphate to 110 minims of distilled water. Liquor arsenicalis is Fowler's solution.—Ed.]

The Lancet, London.

February 18.

8 Functional Mental Disorders. George H. Savage.
9 Early Symptoms of Insular Sclerosis. E. Hobhouse.
10 *Sabouraud's Method of Ringworm Treatment. J. L. Bunch.
11 Some Cases of Urethral Stricture Complicated with a Prostatic False Route or Passage; with Remarks. Reginald Harrison.
12 Colles' Fracture and Other Fractures and Disjunctions at the Lower End of the Radius and Ulna. Andrew Fullerton.
13 Case of Acute Hemorrhagic Pancreatitis; Operation; Recovery. T. C. Litler Jones.
14 Histo-pathology of Seborrhea, Seborrheic Dermatitis and Psoriasis. R. W. Brimacombe.
15 *Case of Endocarditis with Pericarditis Following Scarlet Fever; Treatment by Antistreptococcic Serum; Recovery. Alfred R. Spencer.
16 *Traumatic Lumbago. Frank Romer.

10. Sabouraud's Treatment of Ringworm.—The simplicity and effectiveness of this treatment is attested by Bunch. The method is painless, the actual time necessary for the treatment is short, and the diseased hairs fall out at a definite interval after application of the *x*-rays, and are replaced, after a certain time, by a growth of healthy hair. The essential apparatus necessary is an electric current, constant or alternating, and the Crookes tube. The electric energy for the production of the *x*-rays can be derived from a static machine, a Ruhmkorff coil or a transformer, and the Crookes tube can be of almost any pattern or any age. Sabouraud uses a static machine of ten plates driven by a three-quarter horse-power dynamo with a Béclère "spinter-meter" interposed between it and the tube. This latter modification warns the operator at any moment of an increase in the resistance of the tube and enables him to make any necessary alteration. The tube has an ingenious modification of Villar's which enables it to be made "soft" at will. The relative hardness or softness of the tube is recorded by the radiochronometer of Benoist; the resistance of the tube should correspond to the fourth division of the scale. To measure the quantities of *x*-rays generated in a given time, Holzknecht's pastilles are employed. These are composed of a mixture of alkaline salts and resin, which slowly change in color under the influence of the *x*-rays. From time to time the change in color is compared to the standard scale, each of the 12 degrees of which is termed by Holzknecht's one unity, H. The tint corresponding to 5 unities H of Holzknecht's scale, must not be passed, at least at one sitting. Sabouraud has recently adopted the use of paper covered with an emulsion of platinocyanid of barium, and the tint which corresponds to 5 unities H is copied in water color and kept at hand for reference. The paper has the advantage over the pastilles in that it is cheaper, does not become darker when withdrawn from the rays, and regains its original color when removed from the rays and exposed to light. It is less sensitive, however, than the pastille, and must be placed at about half the distance of the pastilles from the anticathode. To cure a patch of ringworm they must be exposed at a distance of 15 cm. from the Crookes-Villar's tube, the tube having a resistance corresponding to the fourth division of the radiochromometer of Benoist, until the quantity of the *x*-rays generated amounts to from four and a half to five unities H of Holzknecht's scale. The operator and the healthy portions of the patient's scalp must be protected from the rays by enclosing the tube in an impermeable sheath perforated by apertures, one of which admits a metal tube corresponding to the size of the ringworm patch. From the fifteenth day onward, the hairs fall out all over the area treated without any effort or traction. The old hair has been extruded by the time the new hair begins to grow. The growth of the new hairs is slow; in the normal cases it is almost complete two months after its commencement. A single sitting is sufficient, and the danger of reinfection or of recurrence is minimal. Where a large area of scalp has to be treated this is best done by dividing it up into smaller square areas and treating each of them separately. Square areas are much more practicable than round, avoiding overlapping or the omission of small triangular patches where two or three circular areas join. The dosage of the *x*-ray must be accurate and sufficient. The first séance, if insufficient, will cause an imperfect fall of hair, and if a second séance be given, those hairs which survived the first time will fall out, but those which fell out as the result of the first treatment will not grow again. The treatment has proved markedly successful. (See The Journal, page 1265 of the last volume.)

15. Antistreptococcic Serum in Scarlet Fever.—Spencer's patient, a boy, aged 5 years, developed an infective endocarditis with pericarditis, during his convalescence from scarlet fever, in the seventh week. Antistreptococcic serum, in doses of 10 c. c., was injected twice on the ninth and once on the tenth and eleventh days of the illness, and again on the seventeenth, eighteenth (twice) and nineteenth days of illness. Both times the result was marked, the temperature falling rapidly to 98. Spencer advises that the serum treatment be begun early and that the size of the dose should be regulated not by the age of the patient but by the gravity of his condition. It is also undesirable to wait for a positive confirmation of the diagnosis, such as embolism or infarct before beginning treatment.

16. Traumatic Lumbago.—Romer describes this condition as one in which pain and stiffness in the lumbar region, caused by injury, persist long after the immediate and acute effect has passed away. The treatment aims at stretching the contracted muscles and rupturing the adhesions which are supposed to be present. An anesthetic is given to ensure complete muscular relaxation and absolute freedom in manipulation. The patient is placed on his back, the leg on the sound side is flexed at the knee, and the thigh is flexed on the body till the knee touches the chest wall. It is then brought back to the extended position. The leg on the affected side is put through the same movements. Both legs are then brought up in the same manner and down again flat on the bed, the patient being raised to a sitting posture. One hand is placed firmly over the affected lumbar region, while, with the other, the patient is thrust back toward the bed. By this procedure the lumbar portion of the spinal column is put through flexion and extension as the patient is pressed forward and backward. The after-treatment is directed toward the maintenance of movement, for which purpose it is advisable to have the lumbar and gluteal muscles "shampooed" within six hours of the operation. In the course of a few days graduated exercises should be added to the rubbing. Later, swimming is to be advised. The histories of six cases are appended to the paper.

Bulletin de l'Acadêmie de Medécine, Paris.

17 (Year LXIX, No. 5.) *Radioscopie. Loison (Val-de-Grace).
18 *Recherches sur la surdi-mutité (deaf mutism). Castex.
19 Discussion in Regard to Apparatus for Administration of Chloroform. Lucas-Championnière and Reynier.

17. Radioscopy of the Heart.—Loison concludes from radioscopic researches on 400 young men that the size of the heart is comparatively large in persons who have had rheumatism or other affections involving the heart, and also in workmen compelled to violent efforts. On the other hand, the shadow cast by the heart is abnormally small in persons affected with pulmonary tuberculosis or predisposed to contract it. The only exception is in case of tuberculous pleurisy.

18. **Causes of Deaf-Mutism.**—Castex has examined 800 deaf mutes with an autopsy in 154 cases. In about 68 per cent. of the entire number the condition was congenital; in the remaining 32 per cent. the deaf-mutism had been acquired in consequence of lesions in the auditory apparatus, including affections of the auditory centers in the cortex. The autopsy findings emphasize the importance in the etiology of the causal lesions in the labyrinth, cortex or medulla, of meningitis, of infectious diseases and of accidents involving the skull. Suppuration of the middle ear or of the eustachian tubes has much less etiologic importance. In one case the condition followed an acute osteomyelitis. The lack of vertigo in deaf mutes implies the abolition of the functions of the labyrinth and semicircular canals. This frees the victims from seasickness. Direct inheritance of the deaf-mutism he found to be exceptional, but syphilis or alcoholism in the parents, or consanguineous marriages, were frequent in the history of the cases.

Berliner klinische Wochenschrift.

20 (XLII, No. 5, January 30.) Ueber Darmfäulnis bei Icterus catarrhalis (intestinal putrefaction). F. Blumenthal.
21 Cesarean Section in Dwarfs. Two Cases.—Zwei rachitische Zwerginnen, durch Kaiserschnitt entbunden. Zwergwuchs. Helmbold.
22 *Chemisches zur Carcinom-Frage. Ueber anormale fermentative Vorgänge beim Krebs. C. Neuberg.
23 *Frequency of Primary Intestinal Tuberculosis at Berlin.—Ueber die Häufigkeit der primären Darmtuberkulose in Berlin. O. Wagener.
24 Intestinal Affections in Infants.—Klinik der Säuglingsdarmkrankheiten. Salge.

22. **Chemical Study of Carcinoma.**—Neuberg has been examining the chemistry of metastases of carcinoma in the liver, and comparing the findings with those of the primary tumor. He also investigated the influence of carcinoma juice on lung tissue, etc. He found that the tissue of the metastases contained more pentose than the primary focus, showing that important cell functions are transformed and modified, either acquiring new power as a ferment or losing some specific ferment action. These findings throw new light on the cachexia accompanying cancer.

23. **Frequency of Primary Intestinal Tuberculosis at Berlin.**—Among 410 cadavers Wagener found 20 in which primary tuberculosis of the intestines was apparent. In 67 cadavers of children under 15 it appeared in 11, that is, in 16.4 per cent. In Orth's experience with 203 cadavers of children under 15, in only 2 were there traces of primary tuberculosis of the intestines. Wagener further found at Kiel 4.7 per cent. in 600 autopsies, and this list included 76 cadavers of children under 15, with 21.1 per cent. exhibiting the primary intestinal lesions.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

25 (XXXI, No. 3, January 19.) *Zur Frage der physiologischen Albuminurie. W. v. Leube (Würzburg).
26 *Functional Examination of the Heart.—Einiges über funktionelle Herzdiagnostik. Fr. Kraus. (Commenced in No. 2.)
27 *Die Behandlung der habituellen Obstipation. A. Schmidt.
28 *Trichocephaliasis mit tödlichem Ausgang (fatal). A. Sandler (Breslau).
29 *Ueber die Behandlung der nervosen Ohrerkrankungen (nervous ear affections). K. Burkner (Göttingen).
30 *Remarkable Case of Vicarious Activity.—Ein Fall wunderbaren Vikariierens. S. Rubinstein.
31 *Absorbable Ligation Clamp.—Resorbierbare Ligaturklemme. M. Imchanitzky and J. Ries.
32 Ueber die Filatow-Dukesche Krankheit. J. Ruhemann.
33 *Die intravenöse Salicyl-Behandlung. Rubens.
34 New Artificial Carbonated Baths.—Ueber neue künstliche Kohlensäurebäder. A. Zucker.
35 *The St. Louis Exposition.—Erinnerungen an die Weltausstellung in St. Louis, Mo., 1904. W. Waldeyer. (Concluded.)

25. **Physiologic Albuminuria.**—According to von Leube, the albuminuria of puberty is due either to defective or to excessive development which regulates itself later. Other varieties of the so-called physiologic albuminuria are due, he thinks, to a congenital relative porosity of the filtering membrane of the glomeruli; it is sometimes noted in several members of a family. Under the influence of fatigue, nervous excitement or the like, albuminuria may be discovered at times. The reverse condition may be noted in certain other persons, that is, a relative impermeability of the filtering membrane of the glomeruli. This explains why albuminuria does not occur in these subjects even when conditions favoring it exist. In 109 cases of heart disease at his clinic, which came to autopsy, there had been no albuminuria during life in 4 of the patients. To his surprise he found marked evidences of congested kidney in all of this group. The absence of albuminuria indicated that the renal filter must have been extremely nonporous. This varying porosity of the kidney filter must be taken into account in examining cases of cardiac insufficiency without albuminuria.

26. **Examination of the Heart.**—In this communication from the second medical clinic at Berlin, Kraus analyzes the findings of radioscopy of the heart in health and disease. He asserts that the shades of difference between the heart shadows cast in cases of various valvular affections are of greater diagnostic importance than the dilatation of the heart alone. These differences in shadows are due to changes in the shape of the various sections of the heart, the immediate consequence of the valvular defect. The consecutive hypertrophy of the musculature and passive dilatation naturally reinforce and nail, as it were, the differences in the outline. This is especially marked in the left convex protrusion of the so-called left middle arc in case of mitral defect, also in the varying behavior of the left lower arc with mitral insufficiency and pure mitral stenosis, and, finally, in the varying outline of the shadow as it spreads to the right in case of aortic and mitral defects. Radioscopy of the heart after artificial distension of the stomach is very instructive. The presystolic pulsation of the right auricle can be distinctly distinguished from the contraction of the ventricle. Two and sometimes three contractions of the auricle to one of the ventricle are sometimes noted. Intermittence of the heart is seen to be by no means always identical with intermittence of the pulse. In cases of tachycardia and bradycardia radioscopy throws light on many hitherto vague processes, especially those of nervous origin, as he describes in detail.

27. **Treatment of Habitual Constipation.**—Schmidt explains the chief benefit of injections of oil as due to their counteracting the mild irritation induced by the fatty acids generated in bacterial putrefaction. The oil reduces friction and soothes the irritated mucosa. Oil injections are frequently extremely beneficial in spastic obstipation. He has derived great benefit in certain cases from injection of seltzer water. In certain cases the freshening action of the carbonated water on the torpid mucosa is very useful. If the intestines are sensitive, some of the new effervescing oils may be used. In regard to drugs, he remarks that there is no purgative which does not irritate the intestines more or less and frequently aggravate the condition, although some persons can take their rhubarb tablets or cascara drops for years without harm, changing occasionally to prevent habituation. Among the regularly used laxatives he mentions Carlsbad salts, tamarinds, fig syrup or prunes cooked with senna leaves. Penzoldt advocates minute doses of castor oil, and Nothnagel, aloes. In spastic obstipation the mildest means are alone permissible. Severe cases require a rest cure in some clinic or hospital, with, possibly, a systematic course of oil injections. A course at a watering place is advisable for young people, but atonic obstipation in older subjects is best treated by a combination of dietetics, electricity and massage, with small, decreasing doses of some laxative.

28. **Fatal Trichocephaliasis.**—Sandler reports a case from Breslau in which anemia, purpura, bloody diarrhea, vertigo and emaciation developed in consequence of the presence of the tricocephalus dispar. The patient was a lad of 11. He states that it is the third case of fatal trichocephaliasis on record.

29. **Nervous Ear Affections.**—Bürkner emphasizes the neces-

sity for general examination and, possibly, general treatment, before proceeding to local measures. Vomiting and vertigo should always suggest the possibility of some affection of the labyrinth, but this is too often forgotten by the general practitioner. Examination of the ear is of paramount importance in many internal diseases, as many of the phenomena observed may be due to the ear. Certain cases of Ménière's disease are traceable to general vasomotor disturbances with neurasthenia as a predisposing cause. It is best treated by complete rest in bed until cessation of the vertigo and nausea. Ice to the head and repeated vigorous purges, blisters on the back of the neck, iodin to the mastoid process, and venesection should not be neglected in the severer cases. He regards potassium iodid and bromid as preferable to quinin. He orders them in the old formula of 7.5 gm. each in 250 gm. distilled water, of which from 15 to 20 gm. are taken three times a day in half a cup of warm milk. Some physicians prefer nux vomica, salol or pilocarpin. Cold hydrotherapy and vapor baths should be strictly avoided afterward. Subjective phenomena are frequently brought on by overstudy or worry. The auditory nerve is irritated and treatment should spare the nerve further irritation. He has found 1-1,000 atropin sulphate useful for instillation in local treatment of neuralgia of the tympanic plexus.

30. **Remarkable Case of Vicarious Activity.**—Rubinstein classes the patient he describes with Laura Bridgman and Helen Keller on account of the remarkable way in which she conquered her natural infirmities. Selma Kunz was born in 1880 at Wertheim and on account of her unusual intelligence was received into the schools at an exceptionally early age. At the age of 6 an attack of meningitis was followed by complete paralysis, the lips and tongue being the only movable organs left over which she had control. She learned to feed herself by taking up the spoon or fork with her lips and tongue, also to sew with lips and tongue, turn the leaves of books, write, knit and embroider, and even to cut out doll garments with the scissors held in her lips and tongue. She died at the age of 23. Her head corresponded to her years, but the trunk and limbs were those of an emaciated child of 10.

31. **Absorbable Ligation Clamp.**—In various experiments on the heart of animals at the Berne Institute of Physiology, Imchanitzky and Ries found it inconvenient to throw a ligature around all the vessels they wished to tie off. They, therefore, used a long, narrow strip of lead, shaped like the letter U, which they merely squeezed together over the vessel with clamp forceps. It was readily removed at will by cutting through the curved end of the strip. The results were so invariably good that they propose to apply this mode of ligation on man, perfecting the technic by using an absorbable material instead of lead. Magnesium seems most promising for the purpose. Experiences at Kocher's clinic have shown that a strip of magnesium is readily and completely absorbed in a short time.

33. **Intravenous Salicylic Medication.**—Rubens' experience with 60 cases of various affections treated by intravenous injection of small amounts of salicylic acid has been very favorable. In articular rheumatism the effect is remarkable in its promptness, but, in the small doses he uses, the duration of the disease did not seem to be materially shortened. In neuralgia, however, the effect was so prompt and decided that he regards intravenous salicylic medication as the absolute specific for this affection, and also for muscular rheumatism. A single injection usually resulted in a complete cure. The benefit derived differentiates rheumatism from other painful affections. No effect was discernible in influenza, but 2 out-patients with pleuritis were cured with four injections and others with less. Several cases of acute laryngitis were more promptly and favorably influenced by this than by any other treatment. He injects the fluid into a vein in the arm. His formula is .35 gm. sodium salicylate and .05 caffein with distilled water to 2 c.c. This is the same as Mendel's formula, which was decided on after long experience and testing.

35. **Notes from the St. Louis Exposition.**—Waldeyer's appreciative words in regard to the St. Louis Exposition close with an eloquent tribute to the Congress of Arts and Science. Here, for the first time, the work of the thinkers of the world was presented along with that of the workers. He adds that the official report of the exposition, when published, will thus present an unparalleled review of the civilization of the world at the commencement of the twentieth century.

Monatsschrift f. Geb. u. Gynäkologie.

Last indexed page 510.

37 (XX, No. 5.) Uterus duplex separatus cum Vagina duplex [illegible] om der linken Portio, [illegible]
38 *[illegible] ia mit bes. Berück- [illegible] Patientinnen (later [illegible]
39 [illegible] g Delivery.—Vorfall [illegible] ährend der Geburt. [illegible]
40 *[illegible] Cystocele (operative [illegible]
41 Zu den Myomfragen. Martin.
42 (No. 6.) Zur Anatomie und Entwicklungsgeschichte des Uterus unicornis. K. Natanson.
43 3 Interessante Beobachtungen analoger Missbildung (Hernia funiculi um[illegible]
44 *Die subkutane [illegible] und ihre Verwertung in der [illegible]
45 *Restoration of [illegible] re of Vesicovaginal Fistula.—Eine Methode der Wiederherstellung der weiblichen Harnröhre [illegible] einer Blasenscheidenfistel. [illegible]
46 *Ein Fall von primärer [illegible] (abdominal pregnancy). A. Linck.

38. **Health After Placenta Previa.**—Forty-three out of 50 women who had had placenta previa were examined later by Sonnenfeld. Thirty-eight were found free from disturbances. There was slight anemia in 1, and in 3 a tuberculous lung affection. It had developed consecutively to the placenta previa in 2 instances. There was some gynecologic affection as a consequence of the placental anomaly in 31.4 per cent. Abortion had occurred later in 8.5 per cent. The prognosis, according to these experiences at Orthmann's maternity, is not so serious as some writers have maintained. Pregnancy later pursued a normal course in all but 1 of the 18 cases in which it occurred.

40. **Operative Displacement of Bladder in Treatment of Cystocele.**—Cramer has operated in cases of prolapse and cystocele by fastening the mobilized bladder on the rear wall of the uterus and broad ligament. In 3 cases the posterior wall of the cervix was fastened to the anterior abdominal wall. The result was good. The procedure is indicated only in cases requiring laparotomy for other reasons, and is only exceptionally required.

44. **Paraffin Prothesis in Gynecology.**—Stolz has been experimenting with subcutaneous injection of paraffin in treatment of incontinence of urine and prolapse of uterus or vagina. He is convinced that plastic operations are far preferable when possible, owing to the danger of embolism from the paraffin. The latter is indicated only in cases in which other operations are not practicable. He prefers the comparatively soft to the hard paraffin, and relates his experience with 2 clinical cases.

45. **Restoration of Female Urethra.**—Wolkowitsch has previously reported from Kiev 8 cases of extensive vesicovaginal fistulas cured by a plastic operation for which he utilized the uterus. He now reports 5 additional cases thus treated through the vagina with perfect success. In another case in which the urethra had become obliterated by cicatricial growth he bored another, artificial, passage. To line this new passage he loosened the fistula and also loosened the bladder through a suprapubic incision and drew the fistula through the new passage, fastening the fistula lining to the outer opening of the new, artificial, passage. The results were excellent. This technic puts an end to the fistula and restores the urethra at one stroke.

46. **Abdominal Pregnancy.**—In the case described, the findings at the operation demonstrated that the ovum must have become imbedded primarily in the posterior fold of the peritoneum in the cul-de-sac of Douglas.

Münchener medicinische Wochenschrift.

47 (LII, No. 5, January 31.) *Treatment of Acute Suppuration with Congestive Hyperemia.—Behandlung akuter Eiterungen mit Stauungshyperämie. A. Bier (Bonn).
48 Vergiftung mit Isosafrol (intoxication). Waldvogel.
49 Defects of "Ear Trumpets," Two Important Neglected Aids to Hearing.—Ueber Mängel der Hörröhre und über zwei wichtige von Normal- und Schwerhörigen bisher wenig beachtete Hilfsmittel. A. Lucae.
50 Ein Fall von Nephritis syphilitica acuta. H. Thiemann.
51 Nachprüfung der therapeutischen Wirkungen des Gonosan. E. Runge. Same. G. Merzbach.
52 Nephrektomie eines Falles von vereiterter multilokularer Cystenniere (suppurative cystic kidney). A. Stauder.
53 *Test for Bile Pigments.—Eine einfache Probe auf Gallenfarbstoffe. W. Presslich.
54 Zur Diagnose der Embolie der Arteria mesenterica superior. K. Reitter.
55 Neue Instrumente für chirurgische, gynäkologische und geburtshilfliche Operationen. E. Preiss.
56 Ice Bag for Neck.—Ein neuer Halseisbeutel. Löwenstein.
57 Psychotherapie. E. Bleuler.
58 Wine as a Table Beverage.—Der Wein als Genussmittel vom hygienischen und volkswirtschaftlichen Standpunk. O. Schwartz.

47. **Treatment of Acute Suppuration with Bier's "Congestive Hyperemia."**—Bier has become convinced that the profession has been on the *wrong track in combating inflammation.* He thinks that by the end of another decade physicians will believe, as a matter of course, that antiphlogosis, in its strict application, was one of the most serious mistakes in the history of medical science. He has long regarded inflammation as something useful, and promotes instead of fighting it. He has applied "congestive hyperemia"—which he regards as the best of all *means known to date for increasing existing inflammation*—in treatment of 110 cases of acute or subacute suppurative inflammations, after his experience with the chronic had proved so favorable. Each year has extended the sphere of this method of treatment until now he applies it in all cases of accessible suppuration and his results have been eminently favorable. In the present article he describes his *technic for acute inflammations and suppurations.* The constricting rubber bandage is wound several times around the limb as far as possible above the focus of inflammation, and is tightened until there is great "congestion hyperemia." Comparatively loose constriction will accomplish this in case of acute inflammation. The congestion should induce a fiery red edema. The redness and edema which before had been restricted *to the neighborhood of the focus* soon spread all over the arm below the bandage. The most remarkable feature of the treatment is the almost immediate arrest or alleviation of the pain. The constriction should never be applied in such a way as to cause pain or to make the limb turn really blue. The nutrition of the parts is not disturbed. The limb swells, becomes edematous and fiery red and feels warm. If these *phenomena are not observed after the constriction* then the affection has passed its acme and is already on the road to recovery. The constricting bandage is worn for ten hours a day, and *severe cases require twenty to twenty-two hours'* application. For sensitive patients he uses Henle's apparatus, especially for the legs. The fate of the affection seems to be decided by the proper application of the constriction during the very first few days. In case of annoyance from the bandage it can be taken off at intervals during the day. He does not hesitate to apply it over inflamed lymphatics. They improve as *the focus below is influenced for the better.* Those who pin their faith to antiphlogistic measures will be amazed at the swollen, fiery red aspect of the limb, but the patient is satisfied as he has been relieved of all pain by the congestive hyperemia induced. The pain is liable to return to some extent during the pauses. This "hyperemia by damming" hastens the course of the suppuration. Necrotic tissue is rapidly cast off, and, what is more important, parts are kept alive which we are accustomed to see doomed to necrosis under ordinary methods of treatment. We have always supposed that this was inevitable. The congestive *method further localizes* the affection and thus *spares* the patient the necessity for large, mutilating incisions, while ideal function is restored. Another remarkable feature of the treatment is the way in which the edema and redness gradually subside under the congestive hyperemia, even before the constriction is removed. This is always a sign that the infection has been dominated by the blood and that the unknown inflammation "stimulus" has been abolished. Bier reviews his experiences in detail: 5 cases of fresh pyemic metastases aborted by "congestive hyperemia," 2 cases of the transformation of hot abscesses *into a torpid phase,* 5 of severe suppurations of large joints which healed under congestive hyperemia without any other measures, not even an incision, and left the *joint* with absolutely normal function. He thinks that this group alone amply establishes the superiority of his method. He punctures or incises in all cases to allow the escape of the pus unless the benefits from the "congestion hyperemia" become *promptly manifest.* He rejects *draining* and tamponing as the mechanism of a joint is too delicate to stand such rough measures.

53. **Sensitive and Simple Test for Bile Pigments.**—Presslich states that 200 to 300 c.c. of urine turn green on addition of from 15 to 20 drops of fuming nitric acid in case of the presence of bilirubin. The reaction is due to oxidation of the bilirubin into biliverdin, the same chemical process as in Gmelin's reaction.

Riforma Medica, Palermo and Naples.

Last indexed page 835.

59 (XXI, No. 1.) *Effects of Resection of Nerves of Pancreas.—Sugli effetti della resezione dei nervi del pancreas. G. Zamboni.
60 Elastic Tissue in Cirrhosis of Liver.—Sulla origine e distribuzione del tessuto elastico nel fegato cirrotico. L. Girolamo.
61 *Sulla fisiopatologia del grande epiploon (of great omentum). R. Pirone.

59. **Effects of Resection of Pancreatic Nerves.**—This operation was well tolerated by dogs and they showed no serious *disturbance from it during the six months before they* were killed. Retrogressive changes in the islands of Langerhans were marked, but there was no glycosuria, which throws doubt on the assumption that these islands are concerned in the production of glycosuria. Lombroso has also recently reported research on pigeons and dogs, in which he ligated and resected Wirsung's duct. His findings still further disprove this *theory. It is much more probable that the* functional activity of the pancreas is morphologically single. Zamboni is inclined to accept the idea that the islands of Langerhans are embryonal relics, rudiments of organs which, in the lower vertebrates, still perform a more important function.

61. **Physio-Pathology of the Great Omentum.**—Pirone's researches on the protecting part played by the omentum have been mentioned in these columns. His results should compel us to modify our ideas in regard to the omentum and of serous membranes in general. We have too long regarded them as merely protecting envelopes for the organs below. He has established that they have actual phagocytic action, taking up the elements of a necrotic spleen, for instance, after ligation of its pedicle. In these later experiments he used sodium *taurocholate, which has been shown to* have an elective action on the spleen when the animals have been immunized against it. An intravenous dose of 20 cg. kills a large rabbit in ten minutes, but when *immunized against* it the spleen shows specific changes. It becomes enlarged by proliferation of the malpighian corpuscles while macrophages appear in the pulp. He experimented with splenectomized *animals, or those in which the spleen* had been tied off, inducing immunization against this drug and comparing the findings with those of non-splenectomized animals. The results show *that the omentum evidently* tried to compensate the absent spleen. Compensatory hyperplastic processes in the lymphatic follicles of the omentum were unmistakably apparent. The findings suggest *functional relations* between the spleen and omentum beyond what physiologists have hitherto imagined. Cells which possess decided phagocytic action are liberated by the omentum in these conditions. The great omentum evidently participates in *those general processes* of defense which result in the production of immunity.

Correspondenz-Blatt f. Schweizer Aerzte, Basle.

Last indexed page 589.

62 (XXXIV, No. 21.) *Signs of Pregnancy in First Months.—Gibt es sichere Zeichen der Schwangerschaft in den ersten Monaten? O. v. Herff.
63 Zur Behandlung des Schluckwehs (pain in swallowing). A. Jaquet.
64 (No. 22.) Das freiwillige Hilfswesen in der Schweiz (voluntary first aid in Switzerland). W. Sahli.
65 Die Freyer'sche Operation. P. Campiche.
66 Unfall- und Krankenfürsorge, sowie Wohlfahrtseinrichtungen beim Bau des Simplon Tunnels (care of sick and injured in construction of tunnel). E. Haffter. (Commenced in No. 21.)
67 (No. 23.) Ueber Trockenmilch und ihre Verwendung als Nahrungsmittel (milk powder). A. Jaquet.
68 Ueber die Verwendung von Adrenalin-Kokain in der Geburtshilfe und Gynäkologie. E. Wormser.
69 Nebenbewegungen im Kniegelenk und Ruptur der Menisci articulares. T. Christen.
70 Ueber die Aetiologie der Tuberkulose auf der Gold-Kuste (Gold Coast). R. Fisch.

62. **Early Signs of Pregnancy.**—Sarwey's communication on the possibility of diagnosing a pregnancy as early as before the eighteenth week was reviewed in these columns on page 428. In 14 instances he was able to detect the fetal heart sounds at this early date. O. von Herff has paid special attention to this subject, but has never been able to detect the heart sounds so early, and believes it possible only in exceptional cases. He intends to try a curved stethoscope introduced into the vagina, as was proposed some years ago. He was unable to detect the fetal heart sounds even in four fetuses from the twelfth to the sixteenth week of pregnancy which were kept alive in warm physiologic salt solution. No heart sounds could be detected, with or without the stethoscope. He believes, however, that there are other indications which, even at an early stage, allow a presumptive diagnosis of pregnancy with greater confidence than is generally accepted. Ballottement is decisive if it can be determined that it occurs inside the uterus, and if a tumor with ascites can be excluded. Another almost positive sign of pregnancy is the regular increase in the size of the uterus and the pronounced contractions of the fundus. No uterine tumor, no pyometra or hematometra grows so rapidly and regularly in size as the pregnant uterus. Examination at two or three-week intervals will positively decide the question of pregnancy, by this regular growth of the uterus. The contractions also are significant. If a dubious tumor feels very hard at one time and then remarkably soft—doughy—at another, it can be nothing but the gravid uterus. If the fetus dies, the uterus diminishes in size as the amniotic fluid is absorbed. More rapid increase of size than that of a normal pregnancy indicates an acute hydramnion or vesicular mole. In examination of 30,000 women during the last fourteen years, he has encountered only a single instance in which the characteristic patches of discoloration in the vagina occurred outside of a pregnancy. This single exception was in an elderly woman. The patches are deep bluish red or reddish purple, and lie in stripes in the depths of the crevices, especially in the vicinity of the urethra. Mere livid, bluish-green discoloration is frequently encountered outside of pregnancy, in case of disturbances in the circulation from any cause. The true discoloration of pregnancy, as he describes it, he regards as a sign of probability bordering on certainty that a pregnancy exists. [Sarwey replies to von Herff that auscultation must be kept up for twenty to thirty minutes or longer, usually, before the fetal heart sounds become audible at such an early stage as before the eighteenth week. He adds that the birth act is liable to alter the fetal heart action to such an extent that the heart sounds, audible before it, can not be detected afterward, even by direct auscultation of the beating heart of the living fetus. He had occasion to establish this recently in the case of twin fetuses at the fourth and fifth month.—ED.]

Hospitalstidende, Copenhagen.

Last indexed page 431.

71 (XLVII, Nos. 27-28.) Om Appendicitens Etiologi, Patogenese og Diagnose. C. Wessel.
72 *Death from Bee Stings.—Dod ved Bistik. H. Kaarsberg.
73 (No. 29.) *Studier over den kroniske Gastritis. K. Faber.
74 (No. 30.) De otogene Hjerneabscessers Operations-Teknik og deres Efter-Behandlung (brain abscesses). E. Schmiegelow.
75 Structure of Papilloma in Bladder.—Om Blaerepapillomernes Bygning. A. Lendorf.
76 (Nos. 31 32.) *Functional Tests of Kidneys.—Metoderne til at bestemme Nyrernes fysiologiske Funktionsevne forud for Nyreoperationer. T. Rovsing.
77 *Om den Madelung'ske Deformitet af Haanden. K. Poulsen.
78 (No. 34.) Death from Ether.—Et Narkosedodsfald. H. Seidelin.
79 Human Tuberculosis Under Aspect of Perlsucht.—Menneske-tuberkulose af Udseende som Kvaegets Perlesyge. J. Ipsen.

72. **Death from Bee Stings.**—A robust, well to do man of 60, twice had been stung by bees. On one occasion he lay unconscious for two hours afterward. He was very much afraid of being stung, and when the bees attacked him again he died in five minutes. About 50 bees had settled on him, some of them on his lips.

73. **Chronic Gastritis.**—Faber discusses Einhorn's assumed entity of gastritis with "erosions of the stomach." He noticed in 16 cases of chronic gastritis that the gastric mucosa was very easily injured, the mere introduction of the sound or lavage was liable to bring away scraps. This friability of the lining of the stomach occurs very rarely in the absence of gastritis. Ulceration is not an accompaniment of all cases of gastritis, and it may occur with varying degrees. The intensity of the gastritis can not be estimated from the degree of acidity. There is no typical train of symptoms or uniform etiology for ulcerative gastritis. We have no grounds for assuming a spontaneous casting off of scraps of the mucosa, and the gastritis accompanied by ulcerations has scarcely anything to do with the erosions noted at the autopsy. Einhorn's assumed symptom-complex is not sustained by clinical experience. The scraps found in certain cases of chronic gastritis do not reveal a special morbid process, but merely indicate a special friability on the part of the mucosa, due to some pathologic but not uniform condition. So far as the patient is concerned, it is a subordinate phenomenon in certain cases of gastritis, but it may have some diagnostic value in case of acid gastritis.

76. **Tests of Kidney Functioning.**—Rovsing's remarks are based on considerable clinical and experimental research, and were read to open the discussion at the last Northern Surgical Congress. He qualifies cryoscopy of the blood as the most unreliable of the various tests reviewed. Its findings are inconstant and misleading. In the overwhelming majority of cases catheterization of the ureters, showing that the urine from the other kidney is free from albumin, blood, pus or microbes is sufficient basis for confidently carrying out a projected nephrectomy. One of the most important indications which it furnishes is that of the actual presence of the other kidney. Determination of the proportion of urea is the simplest and most reliable of other functional tests, and should be preferred to cryoscopy of the urine and phloridzin glycosuria, as the latter have not displayed any superior advantages over it. In certain rare cases of contracted kidney or of multilocular cystic kidney it may be necessary to expose the other kidney by a lumbar incision to determine by visual inspection and palpation the probabilities as to its assuming the entire urinary function. He emphasizes the fact that because the "other" kidney is not doing its proper amount of work, is no reason for assuming that it can not do it when the inhibiting influence of the diseased kidney is removed.

77. **Madelung's Deformity of the Hand.**—Poulsen gives an illustrated description of 2 cases and reviews 38 in the literature. All but 8 of the patients were women. Linear, oblique osteotomy of the radius restores conditions approximately to normal. His technic is described in detail, with radiograms.

Hygiea, Stockholm.

Last indexed page 511.

80 (LXVII, Nos. 9-10.) *Studier öfver Paranoia querulans. A. Petren.
81 2 fall af myxedem. Ben-sarkom med metastaser. A. Josefson.
82 Nagra ord om eter-narkos efter dropp-metoden med vanlig öppen (kloroform) mask (drop method with open mask). A. Euren.
83 *Prophylaxis of Mercurial Stomatitis.—Om sättet att förekomma kvicksilverstomatiter samt en därtill lämplig tandpasta. J. Almkvist.

84 *Behandlung af tetanus med stora doser kloral (with large doses of chloral). T. Fischer.
85 Anti-Tuberculosis Discussions.
86 Om Röntgen-Behandlung af sarkom. T. Sjogren.
87 *Om äktenskapets ingaende fran hygienens och läkarens synpunkt. S. E. Henschen.
88 (No. 11.) *Sodium Salicylate Treatment of Sympathetic Ophthalmia.—Om den sympatiska oftalmiens behandlung med salicylsyradt natron. C. Lindahl.
89 *Om "preserv-sjukdomar" (illness due to smoked, salted or frozen foodstuffs). E. Ekelöf (physician with Antarctic expedition).
90 Report of V Northern Congress of Internal Medicine, Stockholm, Aug. 29-31, 1904. (Commenced in No. 9.)
91 (No. 12.) *Serum-terapien, sedd fran fysikalisk-kemisk standpunkt. Svante Arrhenius.
92 Nagra iakttagelser fran difteriepidemien i Stockholm, 1903-1904. I. Andersson.
93 *Collective Inquiry in Regard to Venereal Disease in Sweden, Jan. 31, 1905. M. Möller.
94 Relations Between Otitis and Scarlet Fever, Etc.—Forebyggandet af otiter med Skalakansfeber och andra akuta infektionssjukdomar. J. Rodling.
95 2 fall af lupus follicularis disseminatus. H. I. Schlasberg.

80. **Paranoia Querulans.**—Petren relates in minute detail the history of a striking case of contentious, litigious paranoia, reviewing the literature on the subject.

83. **Mercurial Stomatitis.**—Almkvist gives the particulars of 6 cases of syphilis in which stomatitis followed very small doses of mercury, and then of a few more cases in which nothing of the kind was observed, although the mercury had been given in unusually large amounts. The cases cited seem to indicate that the reason why stomatitis develops in some and not in others is on account of the presence or absence of decaying matters and of tartar on the teeth. For this and for other reasons which he enumerates he orders a tooth paste made according to the formula: potassium chlorate, 36; sodium benzoate, 3; sapo albus, 4; sodium biborate and glycerin, each 8, and etherol, 1—the latter being used solely to flavor the paste. The ingredients are all soluble and three years of experience have confirmed the prophylactic efficacy of this tooth paste. It may be preceded by rinsing with a little alcohol. The tartar should be removed beforehand by a dentist.

84. **Large Doses of Chloral in Tetanus.**—No effect was apparent in the severe case of traumatic tetanus described until as much as 2 gm. of chloral had been given seven times a day. The patient was a man of 24. At every attempt to reduce the dose the symptoms recurred with their previous intensity, so these large amounts were continued for thirteen days. Tizzoni's serum and 2 gm. of chloral four times a day had been given during the first six days without appreciable benefit. These large doses relieve the pain and may be given without apprehension as long as the attacks persist. No symptoms of intoxication are observed.

87. **Marriage from the Hygienic and Medical Standpoint.**—Henschen discusses marriage as affecting the prognosis of lung and heart disease, kidney and blood affections, etc. Also the prognosis of the offspring. In respect to venereal diseases, Henschen advocates compulsory instruction of youth in regard to the dangers of venereal diseases. He also advocates a medical certificate as to health as a requisite for the marriage license, and penalties for all those who knowingly transmit venereal disease.

88. **Sodium Salicylate in Sympathetic Ophthalmia.**—Lindahl's experience includes 13 cases of sympathetic ophthalmia. Some of the patients were treated by the administration of 4 to 6 gm. of sodium salicylate daily. The results have confirmed him in the belief that this is a powerful means of combating this affection. It also is a very effectual remedy to use in case of traumatic iridocyclitis, preventing the outbreak of sympathetic ophthalmia or rendering it benign if it does occur. The action of the salicylate is much more certain and prompter than that of mercurial inunctions.

89. **Scurvy.**—Ekelof calls this disease "preserve sickness" as he ascribes it to some intoxication due to the eating of salted, smoked or dried animal foods. This kind of preservation may generate a toxin which is liable to induce scorbutus, epidemic hemeralopia or beriberi. His statements are based on observations made during a three-year trip to the Antarctic regions.

91. **Arrhenius on Serum Therapy.**—This communication on serum therapy from the standpoint of physico-chemistry is merely a recapitulation of data and views with which the readers of The Journal are already familiar.

93. **Collective Inquiry in Regard to Venereal Disease in Sweden.**—A circular was sent to every physician in Sweden asking him to report on Jan. 31, 1905, the number of cases of syphilis in his charge (males, females), recent, secondary and tertiary; of ulcus molle; of gonorrhea and its consequences (adults and children under 15). Also details in regard to the syphilis, whether it was acquired (genital, extragenital), inherited, or of unknown origin. The male and female cases are listed separately.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps During the Spanish War of 1898. By Walter Reed, Major and Surgeon, U. S. A., Victor C. Vaughan, Major and Division Surgeon, U. S. V., and Edward O. Shakespeare, Major and Brigade Surgeon, U. S. V. Vols. I and II. With Maps and Charts. Prepared in Accordance with Act of Congress Under the Direction of Surgeon-General Robert M. O'Reilly, U. S. A. Cloth. Pp. 721. Washington: *The Government Printing Office.* 1904.

Channels of Infection in Tuberculosis. Together with the Conditions, Original or Acquired, which Render the Different Tissues Vulnerable. Being the Weber-Parkes' Prize Essay, 1903. By Hugh Walsham, M.A., M.D. (Cantab.), F.R.C.P., Physician to Out-Patients, formerly Pathologist to the City of London Hospital for Diseases of the Chest. Cloth. Pp. 150. Price, $3.00 net. New York: Wm. Wood & Co. 1905.

Climate and Health in Hot Countries and the Outlines of Tropical Climatology. A Popular Treatise on Personal Hygiene in the Hotter Parts of the World, and on the Climates That Will Be Met with Within Them. By Lieut.-Col. G. M. Giles, M.B., F.R.C.S., Indian Medical Service (Retd.). Cloth. Pp. 109. Price, $3.00 net. New York: William Wood & Co. 1905.

Gynecology. Medical and Surgical. Outlines for Students and Practitioners. By Henry J. Garrigues, A.M., M.D., Gynecologist to St. Mark's Hospital in New York City. With 343 Illustrations. Cloth. Pp. 461. Price, $3.00 net. Philadelphia and London: J. B. Lippincott Co. 1905.

Studies in the Psychology of Sex—Sexual Selection in Man. I, Touch. II, Smell. III, Hearing. IV, Vision. By Havelock Ellis. Cloth. Pp. XII-270. Price, $2.00 net. Sold Only by Subscription to Physicians, Lawyers and Scientists. Philadelphia: F. A. Davis Co.

Fifth Annual Report of the Work of the Cancer Laboratory of the New York State Department of Health. Conducted at the Gratwick Research Laboratory, University of Buffalo, for the Year 1903-4. Paper. Pp. 164. Albany: J. B. Lyon Co. 1904.

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Original Articles.

SOME COMMON ERRORS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.*

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Few subjects in all medicine have received such thorough study in our time as tuberculosis. Current methods in the treatment of its pulmonary form average better than those of old. Results show this fact. The tuberculosis mortality has been reduced in less than three decades by probably 29 per cent. of the former figure, or from 14.25 to 10 per cent. of all deaths. These results are not accidental, but are clearly due more to the better management of the pulmonary form than to any other influence.

The disease is still one of the most appalling of the list. It attacks probably half of all the people at some time in their lives, and it destroys a tenth of them finally, and it deserves the best thought of all physicians.

If the best methods of treatment now are better than those of the last century, we should logically all adopt them. But it is difficult for us all to move with the advance of the general consensus, and we shall probably never wholly agree as to what is, in all particulars, the best treatment. Notwithstanding these drawbacks, we ought to be more united than we are, and I am sure no word can be unwelcome that can help, even a little, to bring us together, and to the best basis.

This paper offers no fresh discoveries, but is rather an attempt, mainly through an invitation to a mutual confession of our common errors, to indicate the best course for to-day.

Men grow fixed in their ideas; they come to regard their notions as among the immutable axioms, and so are slow to discover and to change. The change is more difficult when it involves an actual reversal of views, as many of us have had to experience on the subject of tuberculosis. Not only have we trouble with the developing truths of this science, but our tendency is here, as in our dealings with most diseases, to ask what is good for tuberculosis; that is, what drug or measure, rather than what therapeutic or physiologic end we ought to try to accomplish. It is somehow easier for us to think that quinin or cod liver oil; creosote or a change of climate; some inhalation of drugs or a so-called antitoxin, is good for tuberculosis, than it is to understand that the great first purpose of all treatment is to increase the physiologic power of the patient to resist the disease and to destroy or circumscribe its cause within his own body.

With all our study and experimentation, and in spite of all our theories and hopes, this truth stands as the one cardinal postulate of the subject up to the present moment. We may well search and pray for some shorter cut, for some drug or other thing that shall be as destructive of tuberculosis as quinin is of malarial plasmodia, or iodid of potassium is of actinomyces, or the antitoxin of diphtheria is of the infection of that disease. But we have not found it yet, and the sober fact confronts us that the one supreme need is for more power in the afflicted body to restrict or to destroy the tuberculous process. For our present guidance this truth is so vital that it takes rank with a confession of faith in religion.

Our greatest and most common error has been against this truth, and the results have been correspondingly sad. We have given our patients creosote or guaiacol or some other drug thought to be inimical to the tubercle bacilli, and have neglected the half dozen measures whose tendency is to increase the power of the patient. Thus we have often thrown away the great resources of rest, fresh air, outdoor life, changes in surroundings, and a systematic effort to increase the nutritive forces of the body—and all because we had prescribed some one remedy, or alleged cure, which, through fashion or bias, had filled us with a fatuous faith.

There is no objection to the tonic medicines, from cod liver oil to strychnin; nor to creosote and its modifications, if they do not disagree with the particular patient; nor to soothing inhalants that are harmless; nor to Koch's lymph in minute doses in the incipient cases; nor even to the very cautious use of the so-called tubercle antitoxins—always provided they are understood to be minor and subsidiary things, never of great value, and to be used only as aids to the general hygienic measures referred to—never to their hindrance.

To give creosote to the extent of lowering the digestive power, or to give serum injections that cause phlegmons and higher temperature, or to give coal-tar drugs for fever, while the patient is allowed to go in an unhygienic course of life without advice or correction, is an error so awful in its results that not even confession and penance are a sufficient atonement. And we have all of us sinned in some of these directions, and some of us grievously.

Every one of these patients should be constantly supplied with outdoor atmosphere in such abundance that every successive inspiration brings a fresh dose of air to the lungs, and none from previous expiration. Every one should have long hours of rest—if feverish, the rest recumbent should be almost or quite constant, for exercise increases the fever. The digestive powers should be made to do their best, under the most careful supervision, toward improving the nutrition and possibly also the resisting power of the patient.

But we have allowed our patients to stay indoors,

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* Read before the Chicago Medical Society, 1904.

without proper ventilation, and breathe a poisoned house air three-quarters of the time. We have subscribed to the popular untruth—as pitiful as it is groundless—that patients in a gentle current of air called a *draught* are in danger of colds and other harm, and so we have kept them breathing over and over, their contaminated air. The truth is that one never takes cold in any draught, even a wind, if his body and head are kept warm by clothing. The advice of the profession ought to be to keep in a draught, never out of it; only it would lessen the business of the physicians while it would be of incalculable benefit to the people.

We have given to some of the patients the terse advice to "eat all you can, and drink whisky," with the result that not a few of them have lessened their nutrition by eating a large meal once in a day or two and taking only trifles (often harmful) between times; and have distinctly lessened their powers by too much whisky, taken as the whim moved them.

We have believed the patients who say that they can not eat because they have no appetite, forgetting that a patient can usually be led to take the right food as well as to take medicine. We have agreed with the patient's theory that an appetite is necessary, and that food must be adjusted to the appetite; whereas the truth is that in tuberculosis the food ought to be adjusted to the patient, and the appetite to be ignored almost completely. Appetite is an emotional impulse fitted to the well. Sickness makes it morbid and a poor guide. Many a cadaveric, unhungry patient can be taught to eat six small doses of food daily and get fat—and even then to acquire an appetite.

We have acquiesced in the notions of patients that the more muscular development they can induce the better; so some of them have become athletes with less gain in the limiting fibrosis in their lungs than if they had kept their exercise below rather than above normal. For it is a rule, which probably has no exception, that a tuberculous patient is never helped to resist the disease by muscular development above his normal standard.

Then, we have fallen into the error of supposing that by deep breathing and stretching the sick lung the tuberculosis might be circumscribed; and this in the face of many proofs that all tuberculous tissues should be kept still. There is no good reason to say that lung tissue is an exception to the rule. What we need is a simple, safe and efficient means of putting the sick lung to complete rest in all unilateral cases. All the deep breathing devices are mischievous, and the breathing tubes that stretch the lung tissue are especially so.

In pulmonary hemorrhages we have given large doses of ergot, which has, if it has done anything, increased the blood pressure and so made a fragile vessel more likely to break and bleed. This is the only result that, from its physiologic effects, we had any right to expect from this drug. Such treatment not only makes the bleeding worse, but is like to the tragedy of being slaughtered in the house of one's friends.

And when a patient has bled nearly or quite to syncope, and his pulse has become so fine and weak as to be barely perceptible, we have, fearing he would die otherwise, filled him with normal salt solution that has again distended his vessels and pushed out the clots that had begun to form at the bleeding points, and so helped to destroy the little life that was left. It would profit us to reflect that the condition most conducive to a firm clot in a large vessel-opening is such a degree of exsanguination as to reduce almost to zero the blood pressure at the seat of disease. That patient is most likely to survive a large lung hemorrhage whose blood pressure is for some hours thereafter reduced to the lowest point consistent with life. And transfusions, infusions, and injections of normal salt solution are only in order when we know the bleeding vessels are firmly closed by clots, and when we have reason to think there are no other brittle vessels ready to break. What is more often needed is means to dilate the blood vessels of the periphery and so lessen the pressure in the deeper parts; such measures as fasting, free catharsis, opiates, and compression bands about the limbs at their junction with the body.

We have been guilty of great carelessness with many of our patients and have tolerated their doing a lot of foolish things that have much retarded their recovery. And these are mostly preventable things. One error is to eat what they happen to like and as and when they like it, regardless of consequences. These patients are prone to whims of eating, and occasionally get a fit of indigestion that sets them back for weeks. They are even more erratic in their exercise. Many a one has lost all he had gained in months by a single day of overdoing. The patient is governed by his momentary sensations, and rarely can be trusted to live continuously in that strict moderation which is necessary to keep up a sustained increase in resisting power. A consumptive can not afford to dissipate in anything for a single day, for when his vitality drops even a little his disease promptly becomes worse.

A consumptive's body should always be well and equably clothed, and should never be hampered or restricted by garments. Snug corsets and conventional gowns are an absurdity for the tuberculous woman; worn as they are by most such women, they frequently tip the scales in favor of death rather than recovery. No physician can fairly say to such a patient that the best is being done for her as long as she persists in thus clothing her body. She and her friends should be made to understand that they, not the physician, must take the risk of such foolishness.

Pulmonary tuberculosis is a long disease, and requires a long and uniform course of the best hygiene and management to ensure final and lasting recovery. It is not an enlistment for ninety days, but for a campaign of years. The people do not appreciate this, and the patients are usually disappointed when they discover it; and they rebel, and blame their doctors, for not having told them more plainly. They should be told this truth at the beginning, and told so positively that it will stand out in their mental horizon like a mountain.

Climatic treatment of tuberculosis has rightly become popular the world over. Now, one of the first thoughts in behalf of a consumptive is to send him away for this benefit; and certain climates have become, in the minds of many people, a sure cure for the disease—to these minds nothing else is needed. And numerous benefits may come of a change to another and perhaps a better climate. It may mean not merely a new climate, but rest from labor, change of scene, amusement, relief from the tension of previous occupations, and from the annoyances of a previous environment; a cheerful and optimistic frame of mind may come also. The climatic remedy ought to mean all of these good influences, but usually it does not. And I am compelled to the belief, from abundant observation, that of all the remedies prescribed for the tuberculous, one of the most unsatisfactory is climate, as it is usually employed. Going away for climate is one of the most misused of all the great measures for the sick; and so what ought to be a surpassing benefit often becomes a deception and a vision of death. This misfortune is largely an error of the people, but the profession is at fault about it also. In more than half the instances where it is advised it is for the wrong kind of cases, or at the wrong time, or for the wrong people; that is, it is ordered with poor regard for all the facts in the situation.

No other treatment for tuberculosis is so liable to be made nugatory by circumstances that are usually not thought of. Here is a small list of the faults: Proper climate treatment is always expensive. In more than half the cases it is spoiled by lack of money. Patients should not be sent away without from fifteen to twenty dollars a week for board and expenses. A consumptive, away from home, and especially if he must be alone, ought never to be compelled to count his pennies; it is generally ruinous to his chances of recovery. One of the most pathetic sights is that of a poor consumptive living in a cold, dreary room, going alone to some restaurant for his meals, and then having to study the bill of fare to see how much food he can get for the least money—usually getting the coarsest and least digestible articles, while his digestion is made as bad as it can be by his desolation. His appetite is poor and he eats as seldom as possible for this reason, and to save expense. He ought to eat twice as often as usual, instead of half as often, and of the most expensive foods, such as eggs, milk, tender meat, and the best stale bread and the best butter. These he rarely gets in this manner. Think of a man having to drag himself about and try to live in this way with his temperature frequently two or more degrees above normal. Such a picture is not at all uncommon in any land where consumptives gather.

Hopelessly sick patients, with lung and throat lesions dooming them to death speedily, are every day in the year posted off after climate a thousand miles away, often with little money and usually away from all the home treasures, and on a pilgrimage of death. Such patients should never be allowed to leave home, unless they are rich and insist on going. I know that they mostly start on such journeys on their own or their friends' initiative, and often against the advice of their physicians, but I am afraid that the physician sometimes consents or connives at their going—for some reason that he may think sufficient. The responsibility in such cases is awful, and the reason is frequently not sufficient. Is it possible that sometimes the reason is the lack of courage on the part of the physician to say an unpleasant truth?

These poor people away for climate are often homesick, for they rarely have a friend with them, unless it is some member of their family who must be at work, and so is of little use for comfort or nursing. Homesickness is fatal to any great gain by the patient, and usually prevents any gain while it lasts. Fever, indigestion, cough, and pain aggravate the nostalgia, and check the process of recuperation. A patient ought not to be sent away for climate unless some strong, resolute and cheerful nurse or friend can go with him, or be found at his destination. Even the wealthy are not an exception to this rule, and they can usually follow the rule, as the poor can not.

These patients in a strange land need supervision as well as friendship and comfort, and they usually fail to get it. They need the supervision of both physician and friend, and they often get neither. They do not need to see the physician often, but they do require to have their course of life outlined by him in rather minute detail, and then to be helped by some strong, sane friend or nurse to carry it out without a break. And my word "sane" means cheerful as well as sensible.

Most climate seekers tend to make their change a sight-seeing journey. They try to behave like the well people; they shun the sick and struggle to conform to all the habits of the well. They try to keep up with the well in side excursions; they are morally too weak to refuse invitations that mean exhaustion; they are unwilling to settle down, regard themselves as invalids, and keep still. Thereby they tax their powers unduly and fail to make the best of their opportunities. Their pretenses are like whistling to keep up their courage, but the tubercle bacilli are no respecters of such devices.

Physicians ought to warn all climate-seeking patients against these demoralizing tendencies. Those patients do best who do not pretend to be well, but try patiently to become so. The mental tendency of most of them is to pretend not to be sick. They need help to resist all such cowardly impulses.

The modern, well managed sanatorium offers all these and many more benefits.

I am aware that if all the cautions here expressed were to be strictly observed, many fewer tuberculous persons would be sent away to climates for their health.

What would I do with those forbidden to go? I would keep them at home, or near home and friends, and give them the benefits of the best of their own climates. That is, outdoor life so far as possible, fresh, clean air every minute of their lives, as much rest as need be, a rigid regulation of their exercise, and a thorough study of their nutritive powers, with means to make the very most of them. They should dress and behave like the cheerful sick seeking health; and most of them would recover. Thus regulated, their lives would be as changed and novel as though they had gone to the mountains, and they would have all the benefits of the novelty without its drawbacks.

If you say that these doctrines defy all our previous notions of the value of special climates, the reply is that there is no known medicinal virtue for tuberculosis that inheres in any climate. Climates are chiefly valuable for the consumptive as they make it easy for him to be out of doors, or to have free ventilation indoors. It is the clean atmosphere that circulates freely around the earth that is needed, and needed all the time. It is true that some climates are more comfortable than others, and more enticing; and for those who cough and expectorate much a dry air is best, while high altitude helps to start a fresh constructive force in some cases. Sunshine is both comforting and healthful to the sick, but perhaps of less value than is usually thought; it certainly seems a very vital thing when it is longed for and can not be had; and it is beyond our reach more than half the hours of our lives the world round.

It is the management of the sick, vastly more than climate that tells for recovery of the tuberculous everywhere. A contrary opinion has led us for years to neglect one of the most valuable means for the good of these patients. At great cost of money and trouble we have traveled thousands of miles in search of something valuable, and neglected the precious thing that is always within our reach—and at the end of the journey we have met with only disappointment and despair.

We have beatified the climates of the mountains, the deserts and the balmy fields of the West, and forgotten that in Illinois we have most of the valuable features of the best climates. With the same hygienic management at home, we can give patients 85 per cent. of the benefit they could have in the best climates, while they who go away average to lose quite 15 per cent. of the possible benefits by the drawbacks that beset so many of them in their new domiciles.

It has been the fate of all mankind, who seek for a great good, to look for it in some far country. The Holy Grail seems always to be found on the other side of the hills, never on the hither side or here. But it is here, and whoever truly seeks it usually finds it within his reach. And the home land teems with benefits untouched and that mutely tempt us to use them.

The surest proof of the skill and usefulness of a physician is his capacity to turn to the benefit of the sick the simple and homely facilities that are all about them. The best results with the fewest tools is the test, and no more promising task was ever offered to us than to bring to the thousands of tuberculous victims (who are unable to go properly to the better climates), and at or near their homes, the benefits of the modern treatment of this disease. And it can be done, either in their own houses or in home sanatoria, and done superbly, in a large proportion of cases. If it were done it would reduce the mortality another 10 per cent.— and it will be done, for the twentieth century internist is capable of it, and he will not fail.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.

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(*Continued from page 865.*)

Case 3.—Alex. D., a Polish shoemaker, 38 years of age, entered the Johns Hopkins Hospital for the second time in January, 1900.

History.—His neuralgia was of comparatively short duration, having been present for only two years. It had originated in the supraorbital territory, had invaded the second division the following year, and in March, 1899, a peripheral neurectomy of the supraorbital and infraorbital nerves was performed. This had given him only temporary relief and after a few months the pain returned and the lower, third division, had begun to transmit impulses of pain. There was also a suboccipital extension. The case was a typical one of tic douloureux with an involvement of all three divisions of the right side, but was not an instance of the extreme type of the disease.

Operation.—January 15, 1900. Chloroform. The zygoma was not excised in this case. Enucleation of the ganglion (Fig. 10) presented no great difficulties, although it was my first experience with a bloody case. The wound was sufficiently dry after the extirpation to justify closure without drainage. The pulse during the operation was slowed to 50 beats a minute. Tissues examined by Dr. Barker.[11]

Postoperative Notes.—Convalescence promised to be uninterrupted. The highest recorded temperature was 100 degrees the day after the operation. Healing occurred by primary union. There were no occular palsies in this case; the pupils remained equal and reacted to light. (Fig. 11.)

The patient was up and dressed the fourth day after the operation. Eleven days later, just as arrangements had been made for his discharge from the hospital, after an exposure, he had a severe chill and there followed an outcrop of facial and sacral herpes, complications from which kept him back for some weeks. This has been made the subject of another communication.[28]

Late Result.—January, 1903. Three years after operation. The patient remains well, but the cosmetic result is not particularly good. There is considerable facial deformity, due to the muscular atrophy and replacement of the zygoma—possibly the more evident since the patient has a very broad cephalic index and unusually well-marked zygomatic arches. A slight elevation of the eyebrow is possible on the side of the operation, evidencing a reunion of the facial twig to the occipito-frontalis (pars frontalis). The area of anesthesia remains practically unaltered; it includes the tragus and anterior wall of the auditory canal.

Case 4.—Mrs. Elizabeth R., aged 60.

History.—She had been a great sufferer from toothache during her earlier years. All the teeth had been extracted some years before the onset of her neuralgia. The latter was of eight years' duration and originated in the left nasolabial region. It had been associated with great difficulty in eating or swallowing; from the very beginning movements of the lips or even opening of the mouth would inaugurate a paroxysm. Early in the disease the pain extended into the eyeball; the conjunctivæ became inflamed and a chronic granular inflammation of the lids resulted. The more or less constant purulent discharge due to this condition, owing to pain which its removal occasioned, had been left untreated. She has suffered always from chronic constipation.

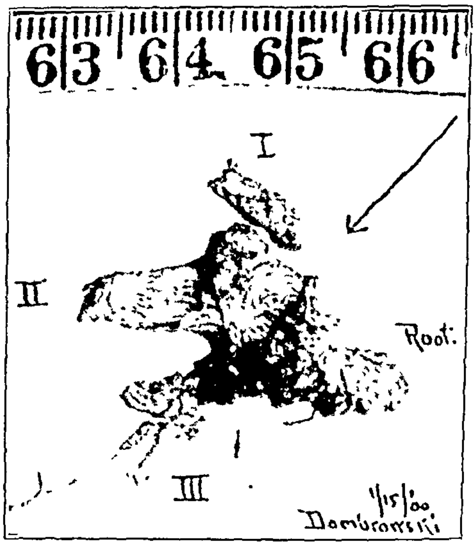

Fig. 10.—Ganglion (slightly magnified) from Case 3, showing upper surface. Ophthalmic division removed as a separate piece. Ramus mandibularis shredded, from effort to evulse instead of dividing it. Arrow points to imprint of evulsing clamp.

In August, 1897, an operation was performed at the Johns Hopkins Hospital on the infraorbital nerve, followed by eighteen months of respite. In June, 1899, a second operation of the same nature was performed. Relief, more or less complete, followed for only four months. With the return of pain the first and third divisions began to show signs of involvement. In June, 1900, the regenerated infraorbital nerve was for the third time evulsed, with a partial relief lasting only four months. The scar which had been produced by the three infraorbital operations had led to an ectropion, which, with the chronic inflammation of the conjunctiva, left the eye in a bad condition.

Ganglion Operation.—January 17, 1900. Ether. From the onset this proved to be a difficult and bloody case. The operation lasted two hours, most of the time having been expended in packing to control the venus hemorrhage. The pulse was slowed, during the entire period of temporal lobe elevation, to an average of 50 beats a minute. The zygoma was temporarily resected, and at the close of the operation wired in position. The ganglion, although somewhat damaged from the effects of the compression, was finally removed in *toto*, together with the sensory root as a separate piece (Fig. 12). Pathologic report by Dr. Barker.[11]

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[28] Perineal Zoster, Am. Jour. Med. Sciences, March, 1904.

Postoperative Notes.—As had been feared, the previous condition of the eye rendered a subsequent keratitis almost certain. A severe conjunctivitis with ulcer formation and corneal opacity, iritis, and posterior synechiæ soon developed. I believe now that it would have been possible to have avoided this extreme process had we at that time been sufficiently versed in the therapeutic requirements of the eye in these cases. The eye, in spite of the advanced process, with vigorous treatment became almost entirely healed. The corneal opacity, however, was of such extent that evidently vision would be much impaired and the patient's inability to move the lower lid and to completely close the eye rendered a subsequent inflammation and break down probable. In view of this fact, and fearful lest, happening after her return home, the other eye might become involved, it was considered best and was desired by the patient that an enucleation be performed. This was done eight weeks after the operation.

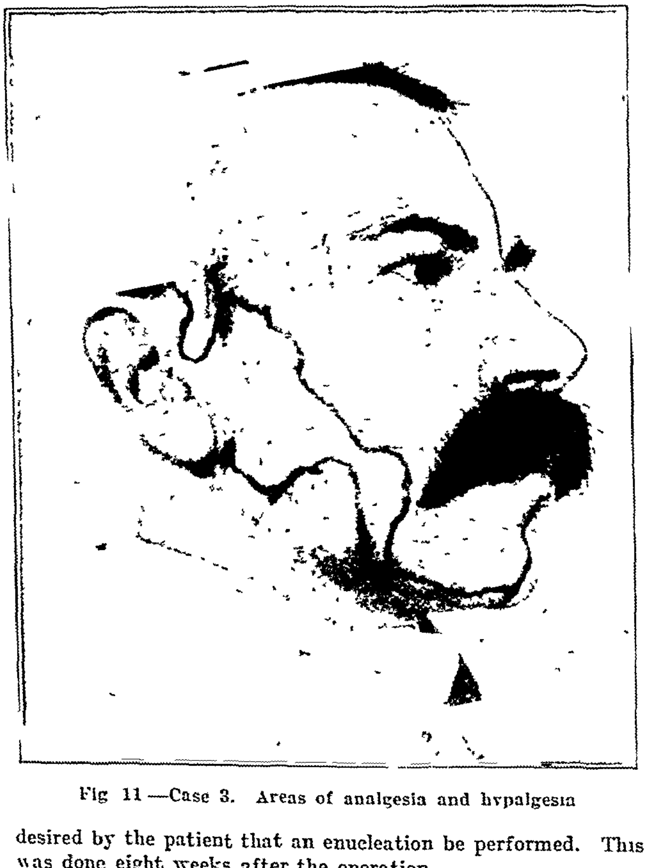

Fig 11.—Case 3. Areas of analgesia and hypalgesia

The convalescence otherwise was quite uneventful. The highest temperature was 101 degrees the night of the operation She was free from pain, bright, hungry and sitting up in bed on the following day. The wound healed *per primam* A partial palsy of the sixth nerve, due to the excessive packing in the neighborhood of the cavernous sinus at the time of the operation, had cleared up before the eye was enucleated. Fig 13 shows the area of anesthesia as it was marked out on the tenth day.

Late Result.—December, 1903. This is not especially brilliant. There is some stiffness of the jaw and some complaint of a dragging sensation and occasional tingling in the enucleated eyeball. The deformity from atrophy is not great, though accentuated by the fact that the zygomatic arch was preserved. The patient wears an artificial eye, which is less unsightly than the injected one was before the ganglion operation. She has had no neuralgia.

CASE 5.—David H., aged 46, a farmer.

History.—He had suffered from a right-sided neuralgia of a severe type for nineteen years. The pain was said to have originated in a tooth in the lower jaw. There was early recourse to morphia. On three previous occasions, April, 1898; August, 1900, and February, 1901, various operations had been done on the inferior maxillary nerve. The dates suffice to show that relief from pain was but transient. He had lost 20 pounds in weight, was incapacitated from work, and at his last admission there were evidences that the second division had become involved. In the spring of 1901, he entered the hospital for the purpose of having the ganglion removed, but a temporary moderation in the severity of his paroxysms had caused the operation to be deferred. Not a case of major severity.

Operation—October 19, 1901. Chloroform. In this case, and in all the following ones, the zygomatic arch was not only resected for operative reasons, but excised for cosmetic ones. The case proved to be very bloody and the operator feared several times that it would have to be abandoned or an attempt made to enucleate the ganglion at a second sitting. As often happens in these especially wet cases, if patience is exercised, some, often unaccountable, alterations in conditions, whether by a change in position of the head by elevation or rotation of the same or from a sudden thrombosis of the torn venules, the bleeding ceases, and what had previously been an exceedingly wet wound becomes unexpectedly a dry one. This, fortunately, happened here and a complete enucleation was possible one moment when the moment before the idea of abandoning the operation had been in mind. In this case for the first time a small drain was left in the posterior inferior angle of the wound.

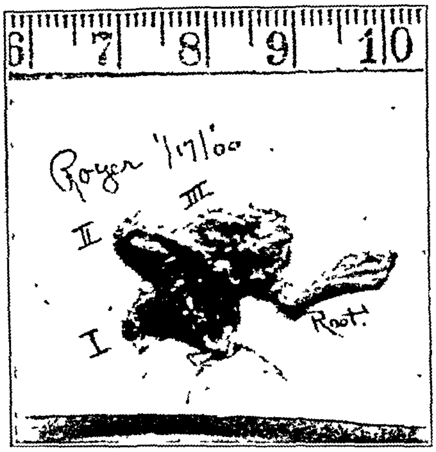

Fig 12.—Tissues from Case 4. Sensory root as a separate piece. Ganglion somewhat fragmented by the traumatism of packing.

Postoperative Notes.—Convalescence was uninterrupted. The sutures were removed on the second day, healing was *per primam*, except for a small granulating spot where the drain had been removed at the time of the first dressing. A slight temporary weakness of the external rectus was present. There were no postoperative complications whatever. The operative result and areas of anesthesia are shown in Fig. 14.

Late Result.—The case has been far from a satisfactory one. The patient has returned to his opium eating and has endeavored to extort money from the hospital on the grounds of having experimented with him, an opinion for which the routine daily observations on sensation, taste, position of palate, etc., are probably responsible. The patient has been seen and examined only once, a year after the operation, when anesthesia to touch and pain remained present over the entire trigeminal area, including the tragus. He complains greatly of stiffness in the jaw and numbness of the face and regards the ganglion operation as quite an unjustifiable one So far as I am aware, he has remained free from neuralgia.

CASE 6.—Augustus W., a farmer, aged 64.

History.—He had suffered from sick headaches all his life. His neuralgia was of fourteen years' duration and had originated in the first division; it was left-sided. After four years, the pain had extended into the infraorbital area; from this time dates his difficulty in deglutition. All the teeth were extracted. More recently, the third division has become involved. In October, 1899, a peripheral operation with evulsion of the infraorbital nerve was performed, with subsequent relief for thirteen months.

Examination.—At the time of his admission, the case had advanced to one of the most extreme degrees of major tic douloureux. There is more or less constant pain with frequent exacerbations, during which he often writhes on the floor. The pain originates chiefly in the region of the nasolabial fold, whence it spreads into the entire trigeminal territory. The individual paroxysms last about 60 seconds. He is weak, emaciated, with a white tangled beard, which, as well as the hair on the left side, is matted with the secretory accumulation of months; he does not remember when he last touched water to his face. He is markedly arteriosclerotic.

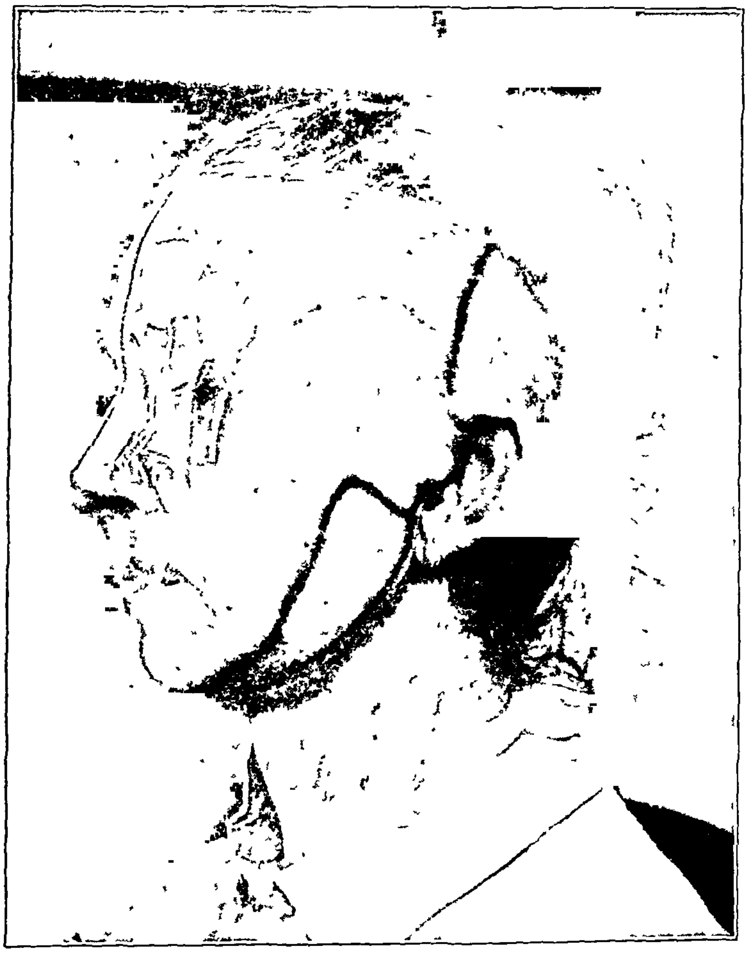

Fig. 13.—Case 4. Photograph on the tenth day, showing areas of analgesia as then inaccurately delineated.

Operation.—November 13, 1901. This proved to be a very satisfactory, dry and uncomplicated case. The ganglion was extracted *in toto* in about 60 minutes. Before the operation, the eyelids had been sutured as advocated by Horsley and others. It is the only time which I have practiced this detail. A small drain was left in the posterior inferior angle of the wound, and removed forty-eight hours later.

Postoperative Notes.—Convalescence was without incident. (Fig. 15). There was a complete paralysis of the abducens and a partial palsy of the motor oculi. The former regained its function only after a few weeks, the latter in a few days. The patient had gained fifteen pounds in weight within a month after the operation.

Late Result.—December 17, 1903 (by letter). Two years after operation he remains perfectly well.

Case 7.—Rev. W. S., aged 43. Referred to me by Dr. Osler. This case possibly represents the most advanced type of the disease in this series.

History.—The pain originated in 1882 in the teeth of the right upper jaw. Extraction of the teeth from this quadrant served only to aggravate it. Twelve years ago an infraorbital operation was performed by Paul Bruns, in Tübingen, followed by relief for six months. The pain returned with increased intensity. In 1894 Meckel's ganglion was removed, in Boston, with complete relief for two years. During the succeeding six years he has run through the usual series of drugs, at the hands of many physicians, and has been repeatedly advised never to undergo any further surgical measures. Strychnia was given a prolonged trial for a period of six months and only given up after the production of serious toxic symptoms. He has been confined to a dark room at his home for months and has only been deterred from self-destruction by his Christian beliefs.

Examination.—He looks a man of sixty. The paroxysms even without apparent cause recur with but brief periods of intermission and there is more or less constant pain between them. All three divisions of the trigeminus are involved. He is unable to protrude the tongue, to speak, to open the mouth, to swallow or to let his facial muscles relax from their constant tense expression. The slightest touch of the moustache or beard or even the movement of the hair by the breath from the nostrils may start a paroxysm. An unusual light or unexpected sound may do the same. A suboccipital extension is present. Weight, 125 pounds.

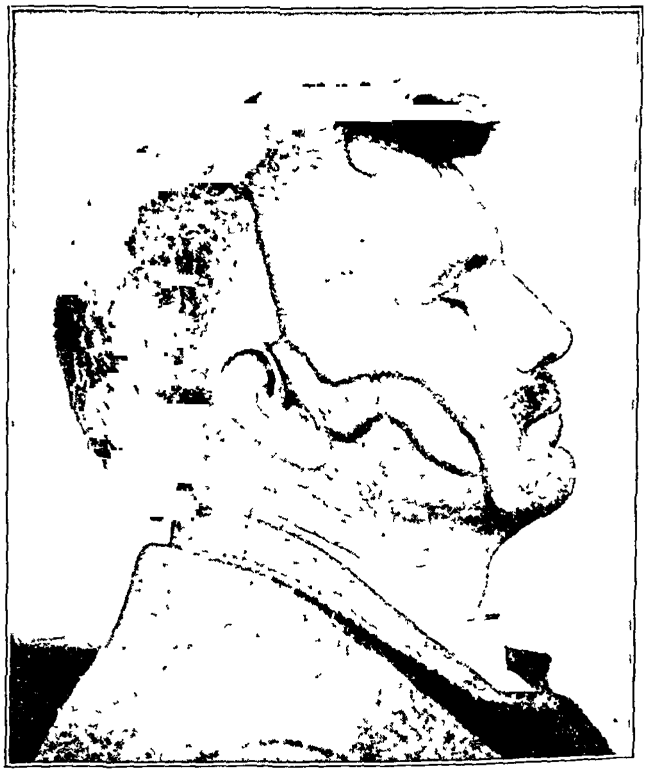

Fig. 14.—Case 5. Photograph on the tenth day, showing areas of analgesia and hypalgesia inaccurately delineated.

Operation.—February 15, 1902. Ether. The patient, as is frequently the case, had to be anesthetized before it was possible even to clip the hair from the operative field, much less to otherwise prepare it. Blood pressure observations were taken in this case, as in all succeeding ones. The great pressor response associated with the paroxysms during the period of anesthetization are represented in the chart. (Fig. 2.) The skin incision was made in the line of the old scar left by the operation on Meckel's ganglion (Fig. 16), which had already paralyzed the occipito-frontalis, and which, from atrophy of the temporal, together with preservation of the zygoma, left quite an obtrusive depression in the temporal region. The zygoma was excised. The case was a very clean-cut and comparatively dry one. The ganglion was removed in its entirety. No particular difficulties from bleeding were encountered either in the approach or in the enucleation. The floor of the temporal fossa was rongeured away somewhat more deeply than customary, owing to an unusually high bony projection from the floor of the temporal fossa. The temporo-maxillary joint was opened in this step. This accident, contrary to what was feared, had no subsequent effect on stiffness of the jaw; indeed, there was less complaint of this sequel than usual, probably owing to the division of the temporal muscle which had already been paralyzed and become fibrous, as a result of the earlier operation. The wound was closed without drainage.

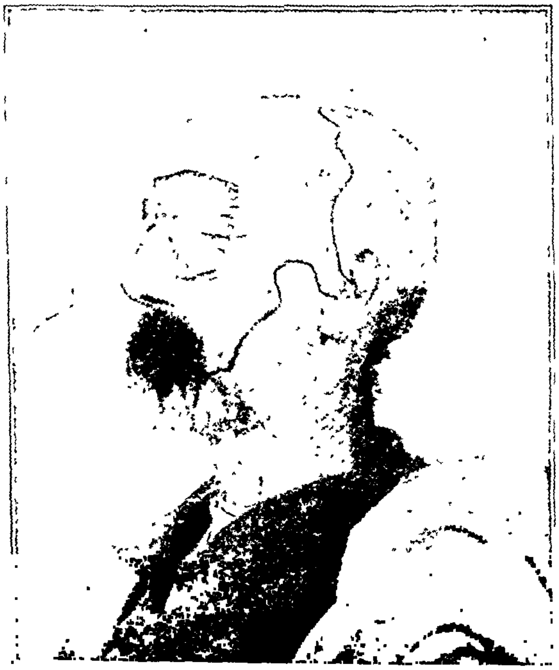

Fig. 15.—Case 6. Photographed on the eighth day, showing area of tactual anesthesia.

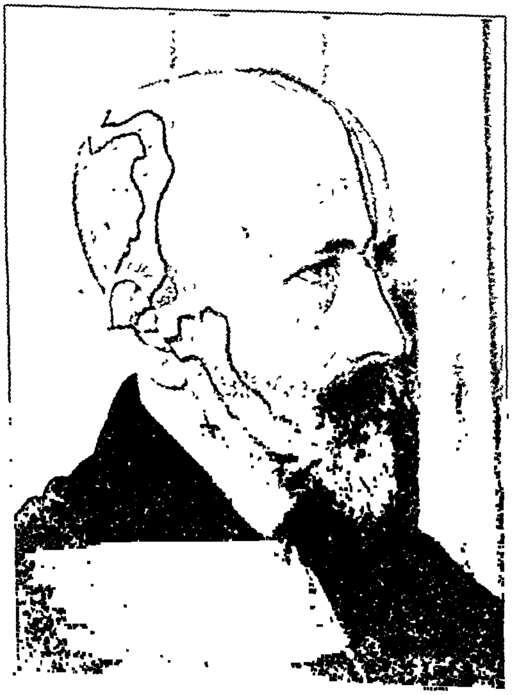

Fig. 16.—Case 7. Photographed on the tenth day, showing areas c[illegible] and pain Variations from average type. [illegible] high, having been made in the scar of an [illegible]

Postoperative Notes.—Convalescence was absolutely uninterrupted. The patient gained 11½ pounds in the two weeks after the operation; 35 pounds in the following four months. He preached twice in his church on the third Sunday, the first time in two years. Many of the most important data which I have been able to gain by postoperative examinations have been secured through the intelligent co-operation of this gentleman.

Late Result.—January 1, 1904, two years after operation. (Figs. 17, 18.) He remains perfectly well and "has not lost half an hour's work from illness since his operation." Has been troubled in very cold weather by an occasional "fogging" of sight in the right eye, a condition which passes off after a short rest. He weighs 165 pounds, a gain of 40 pounds.

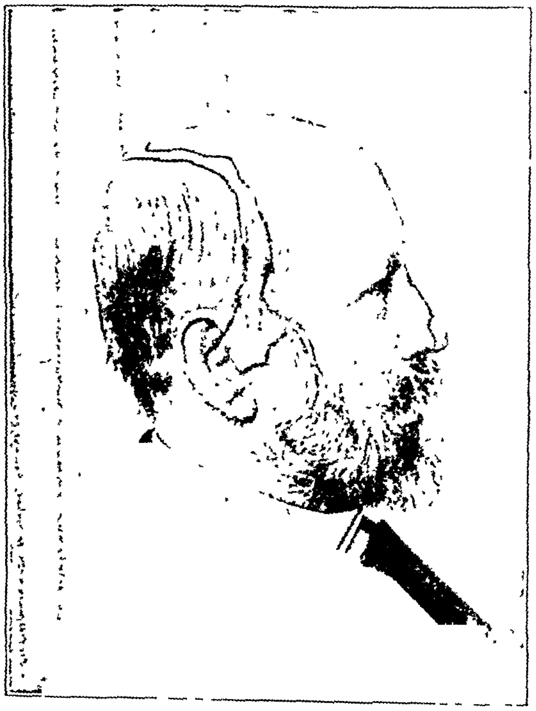

Fig. 17.—Case 8. Outlines of analgetic and anesthetic fields after two years.

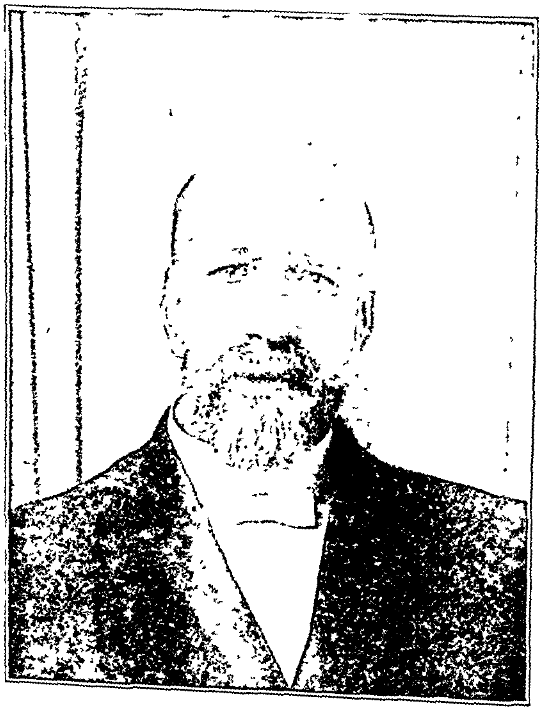

Fig. 18.—Case 7. Late result showing slight though unobtrusive flattening of the face. Zygoma removed.

CASE 8.—George E. P., aged 47, a photographer, had suffered for seven years from a right-sided neuralgia.

History.—This had originated in the region of the temporo-maxillary articulation and involved chiefly the area of the third division. Soon after, several teeth were extracted with a resultant augmentation of symptoms. The pain persisted and in spite of all treatment steadily increased in severity. In June, 1897, the inferior maxillary nerve was evulsed. At this operation an unerupted molar tooth was found, apparently pressing on the nerve, and was thought doubtless to have been the occasion of the neuralgia. The old history states that the anesthetic was very poorly taken at this time. Very slight if any relief was afforded by the operation. Although possibly less severe for a few months, he was never quite free from pain. He returned to the hospital five years later suffering from paroxysms of the most major sort and with all three divisions involved. The pain had progressively extended from the third into the areas of the second and first divisions. For three years he had been almost completely incapacitated, had given up his business and for almost a year had been confined to his room.

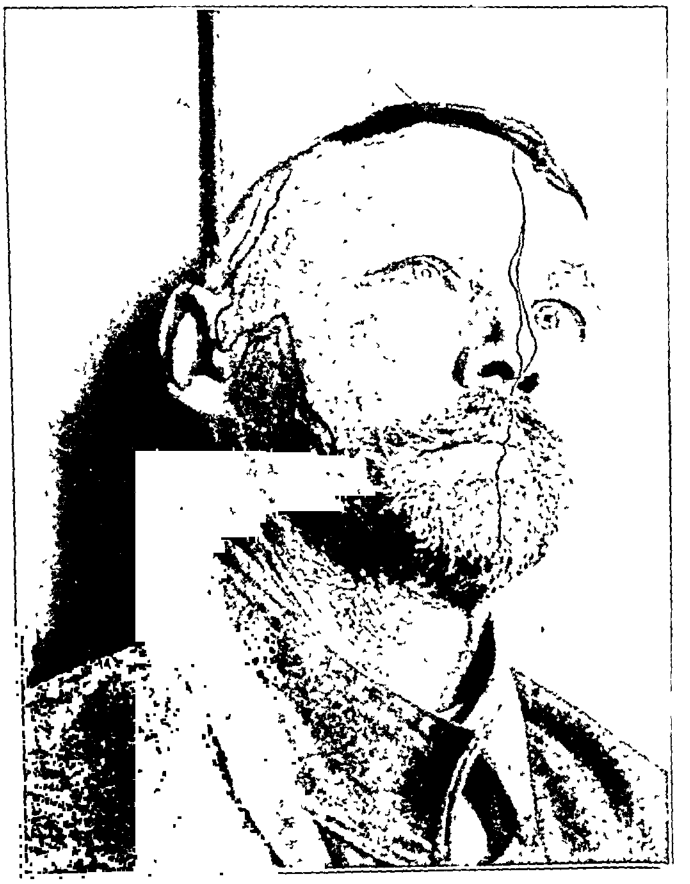

Fig. 19.—Case 9. Eighth day. Areas of total anesthesia. Palsy of right abducens with slight injection of conjunctiva. Patient endeavoring to look toward his right side.

Condition on Admission.—His pain is constant, with extreme exacerbations; he is much emaciated and does not weigh a hundred pounds. Talking, swallowing, or any movement of the tongue or face, is almost impossible. He is incessantly hungry, but every effort to take food produces a paroxysm. His digestion is completely upset from constant drug taking. He cannot protrude his tongue, but on slight opening of the mouth it is seen to be dry and heavily coated. He is a small, sallow, dried-up, little old man, looking 75, though his recorded age is 47. He is "stone deaf" and it is only possible to communicate with him in writing. He has been blind in one eye, on the sound side, from an injury received in childhood, and vision has rapidly been failing in the other. The right side of the head is raw and sore from local applications and incrusted with dried cutaneous secretions; his hair and beard are matted together. His wife says that his face has not been touched for eighteen months. The patient is so ill that only a cursory physical examination was given him. It is impossible for him to keep quiet; he constantly moans and often cries with pain. The operation was performed the day after his admission.

Operation.—March 24, 1902. The patient's head was markedly brachycephalic and the ganglion proved to have a very deep situation. There was comparatively little loss of blood, and the case, from an operative standpoint, proved so comparatively simple that little heed was given to the warnings of his blood pressure chart (Fig. 3), sufficient dependence on which at the time of this operation we had not learned to give. It was thought that sensory impulses from manipulation of the ganglion were the occasion of the depressor response and the ganglion was cocainized in the hope of "blocking" the nerve. Despite the falling blood pressure, the patient's condition seemed to be sufficiently good to justify continuance of the operation. The anesthetic was well taken; his pulse and respiration continued regular; the blood pressure, alone, giving for some time indications of trouble, which were disregarded. The ganglion was removed *in toto*, but the pressure continued to fall, even after the release of the temporal lobe, in spite of every effort to check it; the respiratory center soon showed evidences of anemia, the pulse became irregular, respiration ceased, and despite its artificial continuance the heart ceased beating after about ten minutes.

It is difficult to record fatalities due to operations, which ordinarily have a successful termination, without attempting on some grounds or another to excuse the unhappy outcome. There is none to offer in this case. Unfortunately, although permission was given to remove the ganglion on the opposite side for purposes of examination, a full necropsy was not allowed. The partial exposure of the brain which was rendered possible showed no macroscopic evidence of cerebral lesion. There are several features of the history which make it seem quite possible that an intracranial growth was the underlying cause of his malady. In some of the fatal cases heretofore recorded an autopsy has brought to light an unsuspected neoplasm, a psammoma in Lexer's and a cholesteatoma in Krause's case.[29] Whatever may have been the underlying condition, the operation was the immediate cause of death and should have been abandoned at the time of the patient's beginning failure and reundertaken subsequently if deemed justifiable.

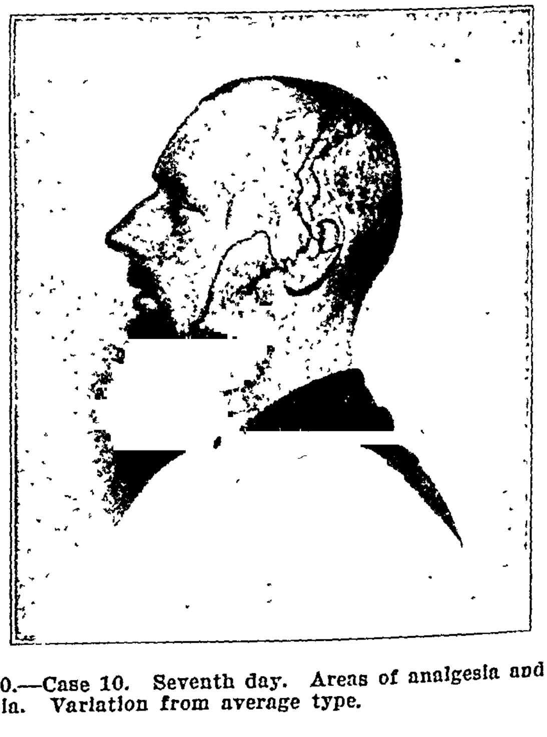

Fig. 20.—Case 10. Seventh day. Areas of analgesia and tactual anesthesia. Variation from average type.

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[29] Lexer (Archiv f. klin. Chir., 1902, vol. lxv) has considered at some length the relation of intracranial tumors to trigeminal pain and has collected several cases. I have myself seen three such cases, in all of which, however, there was present a certain amount of facial anesthesia, and in one of them an associated involvement of neighboring nerves which rendered the diagnosis easy; there is but slight, if any, diminution in the acuity of sensation even in very long-standing cases of true neuralgia, leaving out of account, of course, the results of previous outside neurectomies. No preliminary sensory tests unfortunately were carried out in the case above recorded owing to his condition and the impossibility of easy communication. The eyegrounds should have been examined as well.

Case 9.—W. H., aged 48, railroad employe.

History.—He has been subject to headaches all his life. Twelve years before his ganglion operation, his neuralgia began with pain in the third division. In 1890 some of his teeth were extracted. The pain soon after spread into the second division, and all his remaining teeth were removed. In 1894, the inferior dental nerve was evulsed, with subsequent relief for a few months. With its return the pain finally extended into all divisions of the fifth nerve; each paroxysm would originate in the lower jaw, spread into the infraorbital region, around and through the eye, across the face as far as the tragus and over the forehead to the crown.

Examination.—The right side of his face perspires much more than the left. He has more or less pain all the time, and, although he courageously keeps at work in order to retain his position, he has to "lay off" many days in each month. He has lost fifteen pounds in weight. This is a moderately severe, although not a totally incapacitating case of tic.

Operation.—July 8, 1902. Ether. Preliminary clamping of the common carotid artery was done (Crile). The operation proved to be a very easy one, and though some oozing continued after the enucleation, which rendered the placing of the small drain advisable, it was a relatively dry procedure. Subsequent to the operation, there was some frontal headache on the opposite side. A total paralysis of the sixth nerve, with a slight palsy of the third, was occasioned by pressure (Fig. 19). These oculomotor disturbances cleared up in the course of a few weeks. He gained nine pounds in weight in the ten days after operation. He has gained in all twenty pounds and has kept this weight.

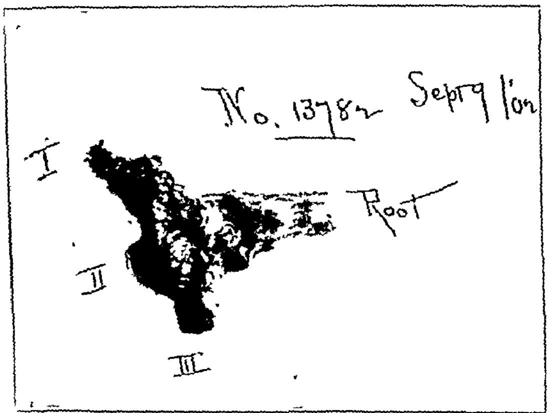

Fig. 21.—Ganglion from Case 11.

Final Result.—Letter. July 1904, two years after operation. He has no neuralgia, remains well and has been on duty every day since returning home. He says that his right pupil remains smaller than the other. He has had some discomfort from "numbness" and from an occasional fogging of the eye, which lasts for a few hours, as in Case 7.

Case 10.—J. J., aged 30, a laborer.

History.—He has suffered from a left-sided neuralgia for the past four years, and attributes it to the exposure attendant on his occupation, that of an oysterman. The pain originated in the second division, the face, gums and palate being involved. Several of his teeth were extracted. A constant increase in severity, so that eating, drinking, talking, etc., became almost impossible, was associated finally with an involvement of the first and third divisions.

Examination.—The pain is more or less continuous with paroxysms every two or three minutes, lasting from thirty to forty-five seconds. Definite "pain-points" are present at the angle of the mouth, on the malar eminence and on the supraorbital ridge. During a paroxysm, his face is greatly drawn and the eye closed, and he exhibits the peculiar chewing movements characteristic of some of these cases. A severe but not an extreme case. All things considered, it seemed advisable to remove the ganglion instead of temporizing with peripheral operations.

Operation.—July 12, 1902. Preliminary clamping of common carotid artery was performed (Crile). The case proved to be a very bloody one from the start and the approach, as well as the extraction, of the ganglion was most tedious. During the operation the clamp was removed from the carotid without affecting the bleeding one way or the other. A complete extirpation was finally accomplished. A drain was left in the posterior angle of the wound.

Postoperative Notes.—Convalescence was absolutely uneventful. Some unilateral headache existed for two or three days. He was up on the third day and was allowed to return home at the end of the second week. (Fig 20.)

He has remained perfectly well and free from pain; has been constantly at work; has kept a gain of twenty pounds in weight; and, aside from the misfortune of having had a temporary inflammation of the cornea from undue exposure and traumatism, he has had no postoperative disturbances. The slight keratitis which occurred will be discussed in a subsequent section.

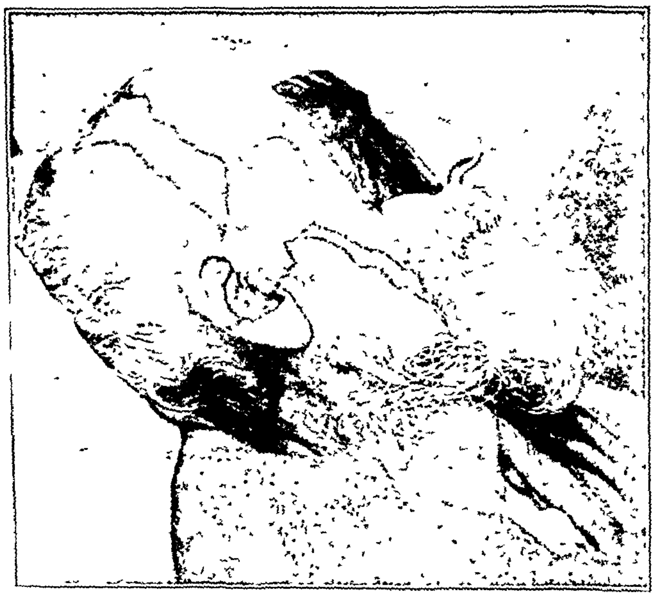

Fig. 22.—Case 11. Areas of anesthesia photographed on the fifth day. Variations from average type.

Case 11.—Mr. A. G., aged 69, a salesman, was referred to me by Dr. W. S. Munro of Providence.

History.—Since youth, the patient has suffered from ill health. He has been a delicate and nervous man. His neuralgia has been of nine years' duration, originating with supraorbital pain which soon extended into the area of the second division. In 1899, an operation was performed on the supraorbital and infraorbital nerves. Relief for nine months followed. A supposed injury to the seventh nerve occurred at the time of this operation, resulting in a slight palsy, which has never quite cleared up, and in an asymmetrical position of the soft palate; also in slight disturbance of taste. In August, 1902, a second operation was necessitated by a return of pain. Relief was only transient. There has been recently an extension to the third division, with "drawing pains" in the lower lip. He has taken a large amount of drugs and had recourse early to morphia.

Examination.—Examination shows an old man, much older than his years, with marked evidences of arteriosclerosis and a weak heart. He is unable to swallow, to chew, to clear the throat, to speak, or to touch his face without inciting a paroxysm. The pain has been "intense enough to craze him;" he has had suicidal thoughts.

Operation.—September 9, 1902. Ether. Duration of operation, forty five minutes. Characteristic blood pressure reaction.

After a series of four very bloody ones, this proved to be a simple, easy, dry case. The ganglion (Fig. 21) was kept in sight all the time and, except from the vein which accompanies the *Ramus mandibularis*, no bleeding of any consequence occurred. No drainage was necessary.

From its ease of performance this should have been the best of all my cases, but unfortunately, it was attended with unusually serious postoperative ocular sequelæ. The combination of the old infraorbital and supraorbital incisions, together with that necessary for the ganglion extirpation, had served to paralyze the orbicularis, and, by shutting off the veins, led also to a considerable edema of the lids. There was at the same time a complete pressure palsy of the third cranial nerve with ptosis and dilatation of the pupil. The fourth and sixth nerves escaped injury.

Postoperative Notes.—Convalescence, aside from the ocular complications and a unilateral headache, lasting a few days, was without incident (Fig. 22). A ravenous appetite soon brought the patient's weight from 103½ pounds, the day before the operation, to 122 pounds four months later. I was unable, unfortunately, to keep him under observation until the ocular palsies had cleared up. An ulcerative keratitis set in after his return home, and, although the best of treatment was given him and the process checked, it led to an opacity of the cornea. Movements of the eyeball ultimately returned, as well as motion in the orbicularis and levator palpebræ.

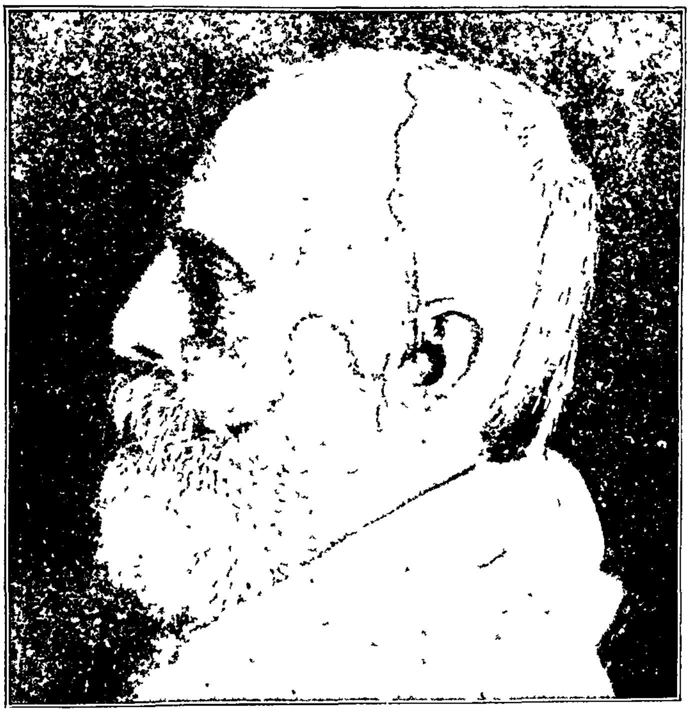

Fig. 23.—Case 12. On eighth day. Showing outline of field of absolute tactual anesthesia as present at that time.

Late Results.—One and one-half years after operation. So far as the neuralgia is concerned, the patient says that he is quite well, but is annoyed occasionally by a "sensation of soreness and tingling about his eye." He unfortunately suffers from other complaints associated with advancing years and his arteriovascular lesions. Though from an operative standpoint this promised to be a brilliant case, from its late results it cannot be so considered.

Case 12.—G. D. B., aged 51; a farmer.

History.—He had suffered for 19 years with neuralgia, whose onset in the supraorbital region on the left side was attributed to exposure and fatigue on one occasion when he had to assist in the effort to put out an extensive fire. At first with intermissions of a few months and then weeks and then days, pain has finally become almost continuous. For the past two years he has never been entirely free from pain. Severe suboccipital extension is present and the pain even shoots down to the shoulder, and, he says, sometimes through the body to his feet. The paroxysms are flash-like and always accompanied, he says, by ocular impressions of light. Paroxysms recur rapidly and, as the patient says, "they have no schedule." They are sometimes very protracted and have been so severe as to cause vomiting. He has gone often for almost a week without having food pass his lips, and he has contemplated suicide. The teeth have been extracted, but he has had no peripheral operations. His hair turned white on the side of the neuralgia long before it changed on the other. The severe character of the pain in this case and the fact of its involving all three divisions seemed to render temporizing with peripheral operations inadvisable.

Operation.—October 18, 1902. Ether. Duration, one hour and thirty minutes. A comparatively easy case, with what at the time was supposed to be a complete extirpation, though the ganglion was torn in its removal. No drainage was necessary.

Postoperative Notes.—Convalescence was uneventful (Fig. 23). No change whatever was present in the pupil nor in the movements of the eye. It was evident, however, before the patient's departure from the hospital that the operation had been incomplete, and a portion of the ophthalmic division with its ganglionic connections to the trigeminal nerve had been left. There was an early partial return of sensation over the forehead, on the upper lid and the side of the nose, and although the operation has proved sufficient up to the present time to stop the paroxysms of neuralgia, some sensory discomforts remain in the supraorbital territory. The case shows the impossibility of relieving a patient, with neuralgia which has originated in the first division, by a simple extirpation of the lower two-thirds of the ganglion. In its result it falls in line with the majority of the earlier cases, such as were reported by Krause in his first communications, by Dr. Tiffany and by others, and there can be no certainty of a total and permanent abolition of neuralgic pain in the ophthalmic area.

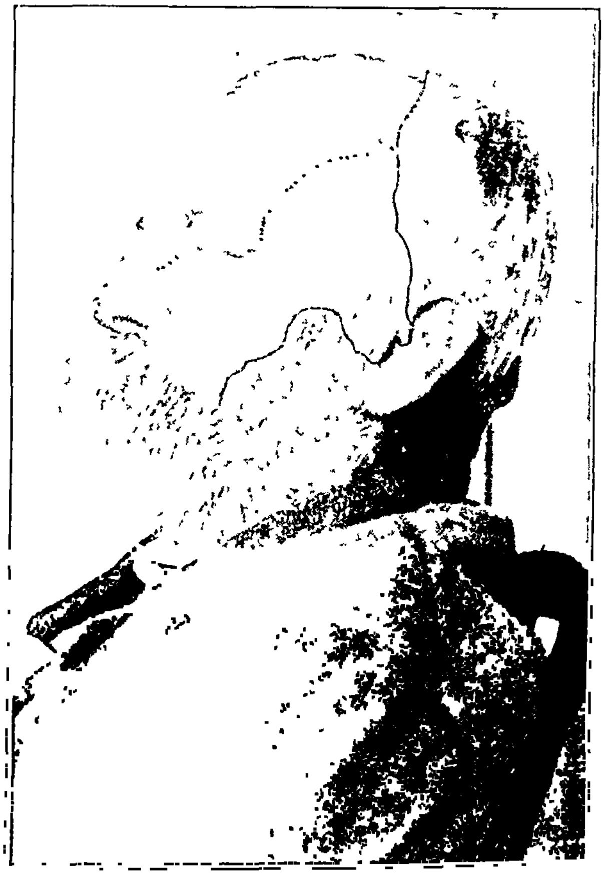

Fig. 24.—Case 12. After eighteen months. Partial return of sensation in field of ophthalmic division. Within dotted line is found hypalgesia, hypesthesia, thermoanesthesia

Late Results.—One and a half years. Patient readmitted to hospital for hemorrhoid operation. Examination shows a partial return of sentiency to pain and touch in ophthalmic division (Fig 24). Total thermo-anesthesia persists. Pigment has largely returned to hair and beard. Says he "looks and feels a new man."

Case 13.—W. Y., aged 49, a laborer, was referred to the hospital by Dr. H. M. Thomas.

History.—He had suffered from a right-sided neuralgia which began in the lower jaw twelve years before his admission. There had been a comparatively rapid extension in this case to the areas of second and first divisions. Although not completely incapacitated, the frequent interruptions in his work, with the loss of time and of money for medical attention which he could ill afford, had been a great burden to him. No preliminary operations were done in this case, as he wished to undergo a permanent cure, even though there were attendant risks.

Operation.—December 20, 1902. Ether. The case proved to be a difficult one. An unusually high systolic pressure under the anesthetic may have accounted for this. Bleeding was the occasion of frequent delay during the approach to the ganglion and more especially during its enucleation. Almost two hours were necessary for the completion of the operation. It was considered advisable to leave a drain.

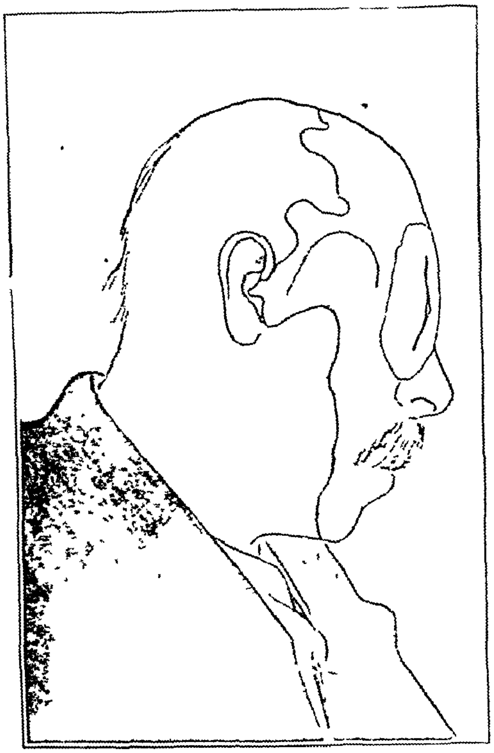

Fig 25—Case 13 Print from a poor negative, taken on the tenth day, showing delineation of tactual anesthesia, line of incision and Buller shield

Postoperative Notes.—Convalescence was uneventful (Fig. 25). There was slight postoperative palsy of the sixth nerve, which disappeared within a few weeks. Contraction of the pupil, which was noted immediately after the operation, did not last more than a short time, and the pupils are now equal. He has had some stiffness of the jaw. His result is in an inverse ratio to the satisfactoriness of the operative procedure. The postoperative deformity is slight (Fig. 26). He has had no return of pain whatever. The anesthesia (Fig. 27) and other functional postoperative sequelæ of removing the fifth nerve have remained unchanged up to the present time (one year). Frequent examinations have been possible, as the patient is a Baltimorean.

Case 14.—Mrs. W. H., aged 47.

History.—She had suffered for many years with left-sided neuralgia. She was an old friend of the hospital, having already undergone there several peripheral operations. Her neuralgia finally involved the entire trigeminal territory and with an intensity which left her never quite free from pain.

Examination.—She presents the usual picture of severe tic; any sort of stimulation suffices to inaugurate a paroxysm, during which she violently rubs her cheek and forehead, so that all the hair from the eyebrow and temporal region on that side and much of the skin has been worn off by friction. Her chief pain originates from the areas (second and third divisions) which were rendered anesthetic by her previous peripheral operations and which now are "painfully numb" (*hypæsthesia dolorosa*).

Operation.—Jan. 22, 1903. Up to the point of extracting the ganglion the case proved to be a very simple one. When the structure was clamped, however, after its liberation, a shred of dura, leading from the ganglion to the side of the lateral sinus, must have been caught in the forceps, for when the ganglion was slowly rotated out a well of venous blood spurted up in the wound in a way in which I have never before seen bleeding in a ganglion case. There was almost immediately a great fall in blood pressure and the wound was quickly packed with gauze. After waiting some time and preparing the incision for its final closure, an effort was made to slowly remove this packing, but as soon as the deepest piece of gauze was again liberated the same gush of venous blood recurred. Consequently, only a partial closure was possible and the patient was returned to bed with the wound packed.

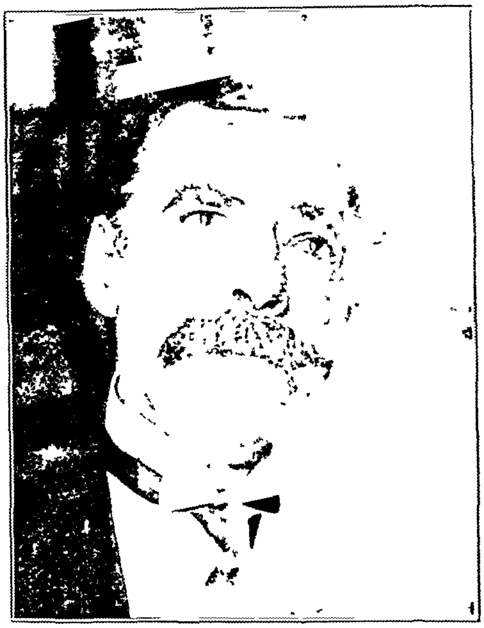

Fig 26—Case 13 After one year. To show slight but unobtrusive flattening of face. Zygoma removed.

Postoperative Notes.—Nausea and headache ensued for two or three days, the latter being confined to the right side and was only completely relieved when it was possible to permanently remove the drain, as will be described. Attempts were made on the second day and again on the seventh day after the operation to remove the gauze; each time a gush of blood necessitated prompt repacking. February 3, twelve days after the operation, an hour was spent in the painstaking effort to carefully displace the pack. When the last piece of gauze was slowly lifted from its bed a gush of blood followed sufficient to produce syncope and to occasion anxiety for the patient's life. A week after, while the patient was straining at stool, a spontaneous bleeding occurred. The hemoglobin at this time was reduced to 30 per cent. and her condition seemed very critical. On February 23 there occurred suddenly, without the patient's being aware of it herself, a great protrusion of the left eye with a rapidly forming edema of the lids (Fig. 28). Ophthalmoscopic examination within a few hours showed a multitude of retinal hemorrhages, and in a few days the entire eyeball became so opaque that examination of the fundus was no longer possible. Evidently the long-awaited thrombosis of the cavernous sinus had taken place and the pack could be removed with safety. This was done on the following day, with no resultant bleeding whatever. It seemed useless to attempt to save the eye. There was total and probably permanent loss of vision; long compression had paralyzed the oculomotor muscles; all the transparent structures of the globe were clouded, and there was a most unsightly exophthalmus. From this time on improvement was rapid, and the patient's hemoglobin in 14 days increased from 30 to 73 per cent. On March 6 the eyeball was enucleated.

Late Result.—Letter; one year. "The patient is at home, well, at work, has had no neuralgia and has gained 20 pounds in weight, and regards the loss of the eye as a small price to pay for the freedom from pain."

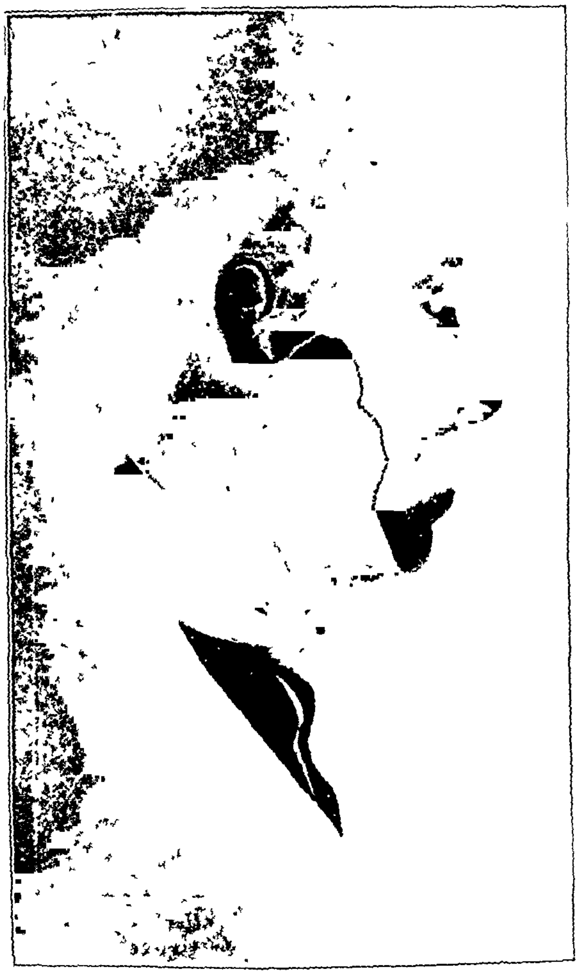

Fig. 27.—Case 13 After one year. *Area of tactual anesthesia* (for comparison with Figure 25)

It is lamentable that among the women, in this series of cases, the *most* vexatious complications have arisen. I have attributed this to the fact that they have been, with one exception, left-sided cases, and not only is there greater risk of cerebral complication from compression on this side, but also, for me at least, the operation on the left has been less easily conducted. So far as I am aware, the sequel of a cavernous sinus thrombosis has heretofore never been recorded, although many have believed that they have injured the vessel during the operation Cases of non-septic thrombosis also, from whatever cause, must be exceedingly rare. The mechanical result of the stasis was the counterpart of that seen in the [illegible] common infective cavernous sinus thromboses but [illegible] the serious clinical manifestations accompanying the [illegible]ition

Case 15.—Mrs. R. [illegible] 52

History.—This was [illegible] case and proved to be a complicated one. She [illegible] severe neuralgia for several years, which had originated almost simultaneously in the second and third divisions. She spoke of her paroxysms as a "red-hot sawmill" operating on her face. She was a frail and nervous woman, a very unfavorable subject, in whom it may have been a mistake to have attempted a ganglion extirpation, but it had been seriously urged by her physician and friends. Aside from the extraction of her teeth and the usual run of therapeutic measures commonly advocated, she had undergone no previous operations. Her mental condition was unbalanced; she suffered from delusions of persecution, and had very little sense of orientation. Only within a few months had the paroxysms spread into the supraorbital region. There was a considerable degree of arteriosclerosis.

Operation.—April 27, 1903; ether. The case was a very difficult one from the start, the patient's blood pressure registering, as it did, in the neighborhood of 300 mm. of mercury even under normal conditions, was probably responsible for this. Every step, from the first skin incision, was associated with bleeding, which was controlled with difficulty. The diploe bled freely, necessitating the use of wax after almost every bite with the rongeur forceps. After partially exposing the ganglion, it was determined to pack and to postpone the operation for 48 hours. This was the first and only case in this series in which it has been necessary to do this. Adrenalin was used locally with absolutely no appreciable effect in checking the bleeding. The wound was packed; a stuporous condition from compression, with a "jargon aphasia," was present for two days, while awaiting the second operation.

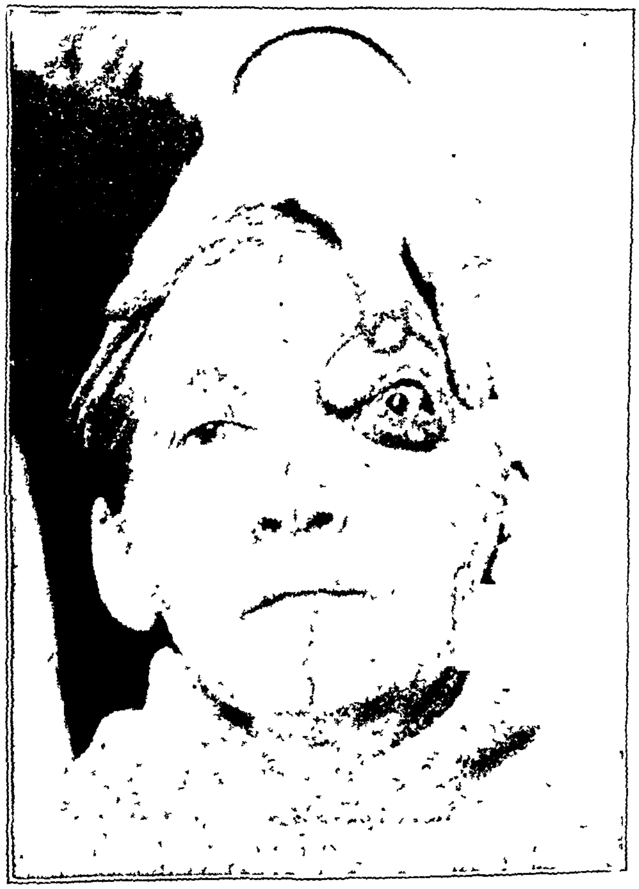

Fig. 28.—Case 14. Photograph March 1, after thrombosis of the cavernous sinus.

Second Operation.—April 29, 1903. Under better auspices and with a better light, the operation was carried through to a successful termination. Some bleeding was occasioned, chiefly in the neighborhood of the second division, where a vein passing through the foramen ovale was torn. This, however, was easily controlled. Adrenalin again was employed, with no apparent benefit. The wound was drained.

Postoperative Notes.—Her aphasia completely disappeared a few days after her second operation. There was a slight temporary palsy of the oculomotor nerves. Otherwise her convalescence was uninterrupted and she returned to her home in the South apparently very much improved in her mental condition and free from pain. She died seven months later, as I have learned from her sister, of some intercurrent affection.

(To be continued.)

AN IMPROVED X-RAY FOR THE STUDY OF BONE INJURIES AND FOREIGN BODIES.

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DENVER.

A brief consideration of some of the fundamental principles underlying the use of the *x*-ray in diagnosis is somewhat necessary for a full understanding of the reasons for the superiority of this method over the one commonly in use.

The *x*-ray or Roentgen ray is a form of energy originating at the target of a Crookes vacuum tube, generated by the impact of energy from the negative terminal or the cathode. This energy proceeds divergently from its point of origin; it becomes feebler with increasing distance of travel, and it can not be refracted nor reflected from its course. It is said by some that a "diffusion" of rays takes place when passing through bodies of certain density or thickness, but I do not fully subscribe to this; the diffusion of the rays is said to be the cause of lack of clearness in skiagrams of thick parts. My own belief is that this lack of clearness is due to rays formed on the walls and metal parts of the tube other than the target, and that these rays, proceeding in different lines from those originating on the target, during the longer exposure demanded by thick parts, also affect the sensitive plate and thus blur the image.

For the diagnostic use of the *x*-ray there are two principal methods—fluoroscopy and skiagraphy. Fluoroscopy is a rather rough and inexact method as compared with skiagraphy. Both are made necessary by the fact that the *x*-ray does not cause a visual sensation in the retina; therefore, we must use accessories to render the effect of the *x*-ray visible to us.

In fluoroscopy a chemical screen is used; this is a surface coated with a chemical which will fluoresce or glow with light when acted on by the *x*-ray. There are many of these substances, most prominent being the tungstate of calcium and platinum barium cyanid. Tungstate of calcium reacts with a beautiful white light, but has the disadvantage of being somewhat phosphorescent; that is to say, it continues to react for a little time after the *x*-ray has been cut off, so that it is less useful in fluoroscopy than as an intensifying screen. When used in the latter manner it is inclosed in the holder or envelope with the sensitive plate, the chemical side next to the plate; it greatly shortens the time of exposure, but it causes a granular appearance in the developed plate, and in these days of extremely powerful machines, exposures are normally so short that a screen is not needed.

The platinum barium cyanid screen is almost exclusively used in fluoroscopy, as it is not so good an intensifying screen as the other.

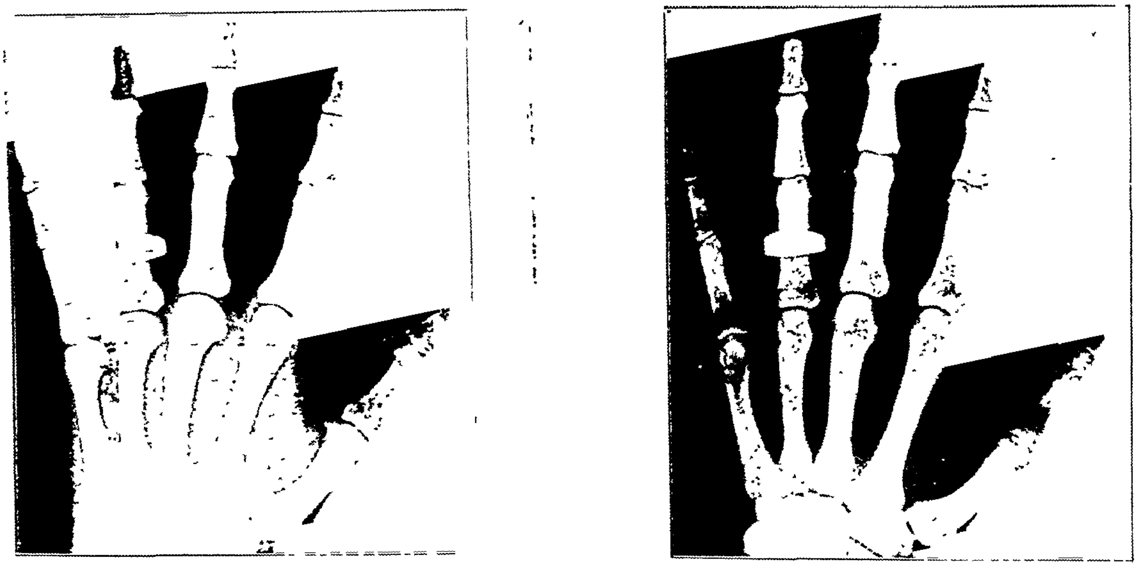

Fig. 1.—Stereograph of a piece of a needle in the hand. These may be viewed through a stereoscope or by the method described at the conclusion of the article.

The results of fluoroscopy are very much less accurate than those of skiagraphy; many details are lost on account of the uneven surface of the screen. Its less delicate sensitiveness, as compared to that of the photographic plate, and its own imperfections are accentuated by the limitations of the human retina, which at its best is well known to be unable to record light effects as well as the sensitive plate, and still less so when working under the trying light of the fluorescent screen. The skiagraph gives us more than a shadow; it shows structural detail that the screen fails to record, and, most important of all, it is a permanent record that can be studied at leisure, and which can be preserved indefinitely. This latter feature will be found of great value in watching the progress of bone repair after injuries and during treatment, in proving the existence of lesions and their correction.

When it is possible to obtain the services of a competent skiagrapher, no physician can afford to neglect the information given by the *x*-ray. By this means he sees the nature and extent of the injury, and if replacement is correct and dressings sufficiently retentive.

The time is close at hand when failure to use this means in the treatment of fractures and dislocations will be evidence of neglect and incompetent treatment.

In medicolegal complications, a technically correct and legally complete skiagram will often prevent expense and other injury to both parties of possible suits; the mere fact that the physician had insisted on an examination by the *x*-ray would show that he had exercised due diligence in his handling of the case.

In the skiagram as usually made, we get information, mainly, of but two dimensions of the object, these dimensions being of planes more or less approaching a parallel with the surface of the plate; but of the third dimension, or of the dimension in planes vertical to the surface of the plate, we get practically nothing. It is true that one who is thoroughly familiar with the interpretation of negatives does get some knowledge from them of these other planes, but it is not sufficiently exact to be greatly relied on. For instance, in the case of an oblique fracture of a long bone, with the plane of cleavage lying more or less parallel to the surface of the plate, the expert can often tell by certain features of the image which fragment has its fractured end nearest the plate.

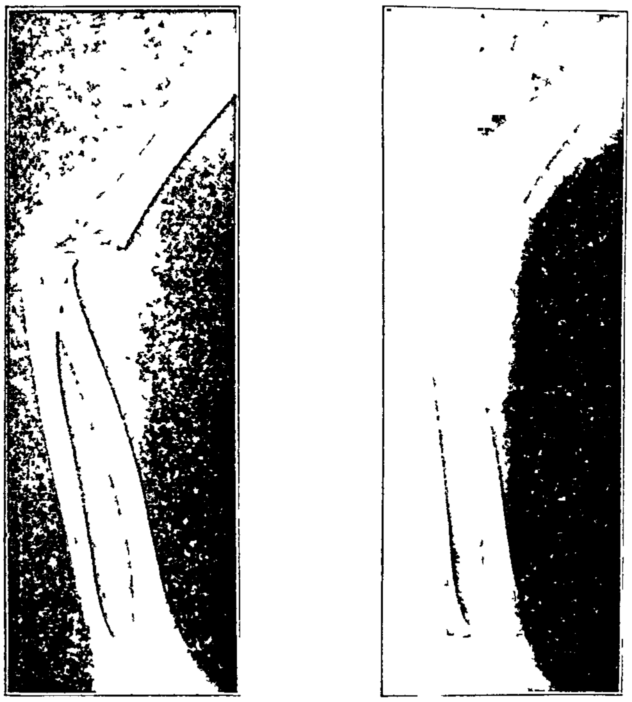

Fig. 2.—Fracture of humerus in a child.

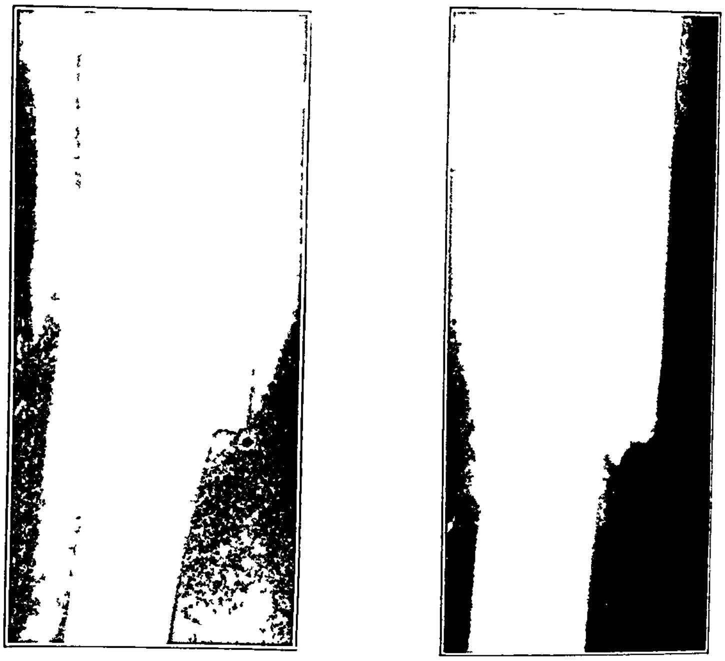

Fig. 3.—Fracture of tibia and fibula.

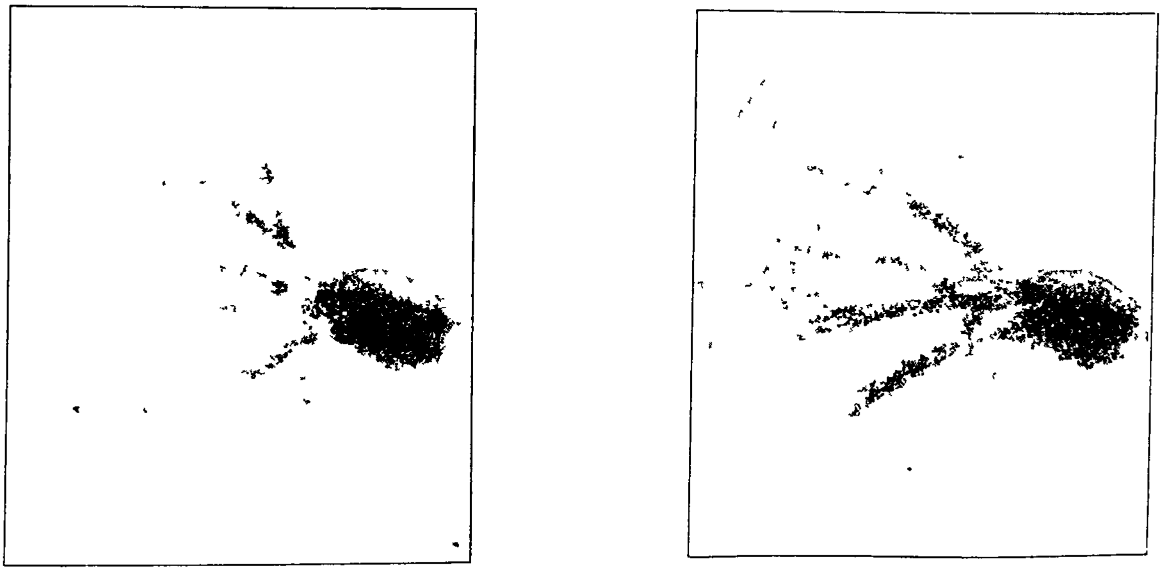

Fig. 4.—Injected kidney of sheep.

Examine a skiagram showing a needle in the hand; the needle is plainly to be seen, but the skiagram does not tell if it is nearer the palmar or the dorsal surface, nor where it lies in the intervening space.

In an anteroposterior skiagram of a fracture of a long bone, the lateral relationship of the fragments is shown but not the anteroposterior.

In locating foreign bodies, it has been necessary to place several metallic markers on the skin, to take two skiagrams, and then to go through an elaborate mathematical and geometrical computation in order to get exact data, and in many fracture cases it has been necessary to take two skiagrams at right angles to each other,

For the process here described two skiagrams are needed, but the remainder of the examination is much simplified. Only exceptionally are markers needed,

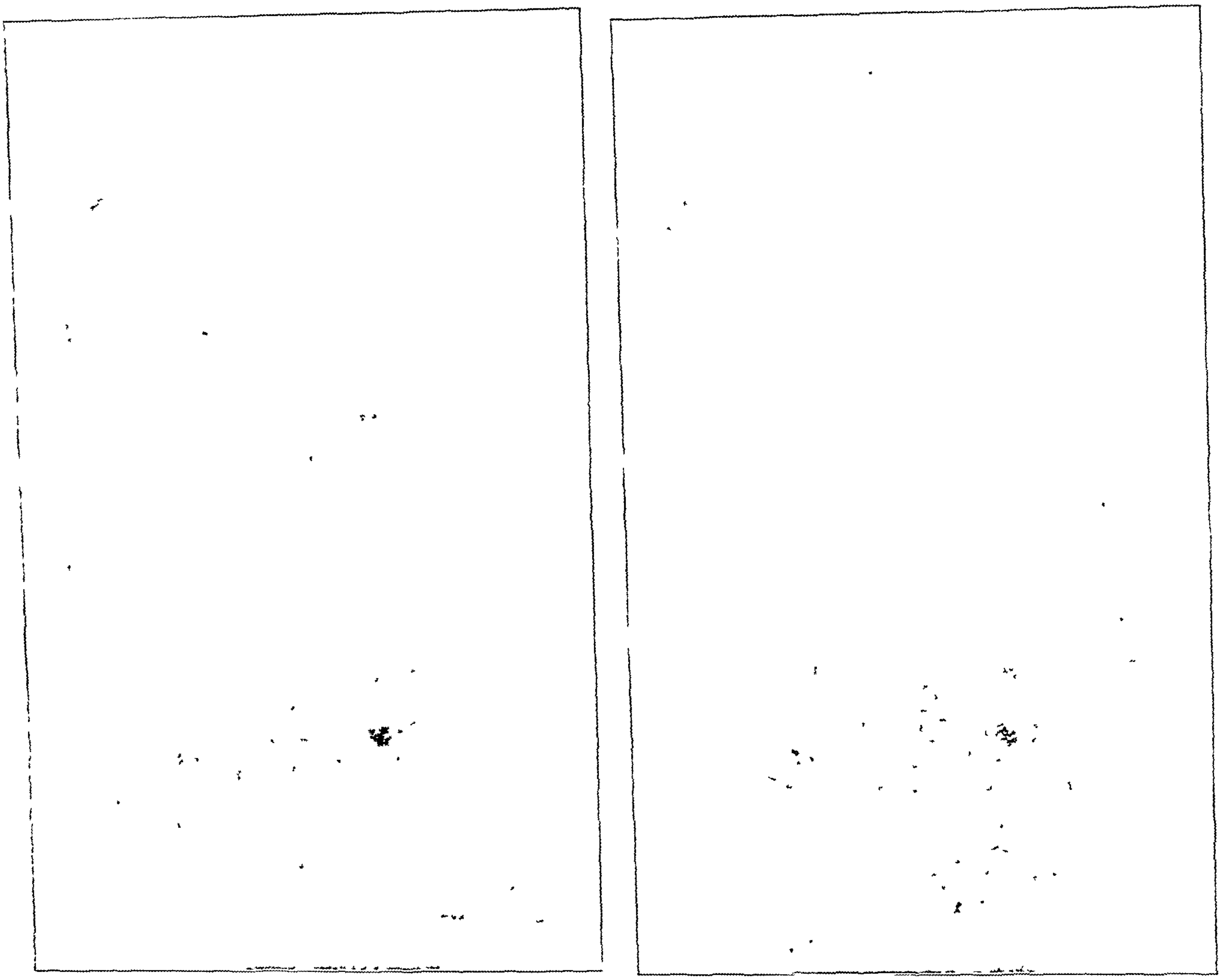

Fig 5 —Gunshot wound of hand. View of palmar side

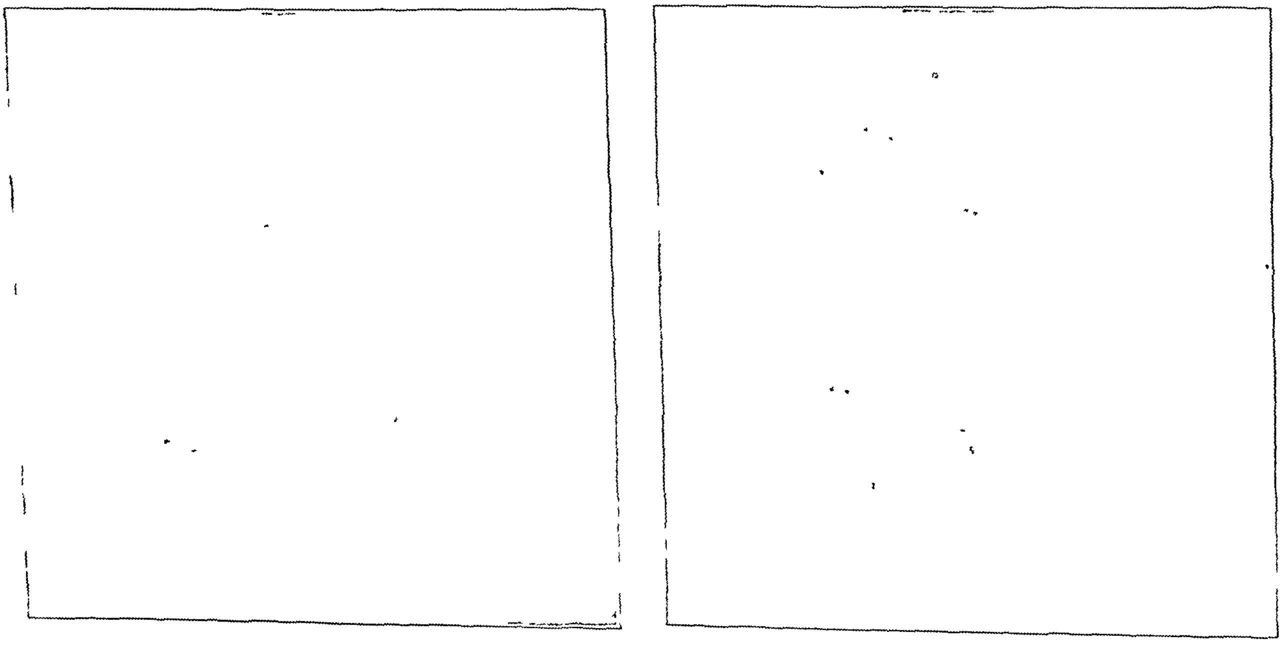

Fig 6 —Cavity in os calcis Pieces of lead in the skin

and then but one. It is not necessary to study separately two skiagrams taken from widely different points of view, and then to coax them to give a mental picture of the real condition.

In this improved methed, both pictures are combined into one, giving a view of the parts almost as definite as if they had been stripped of all impeding tissues; or better, that the flesh and other tissues which defy unaided eyes are made to serve as landmarks in the steroscopic skiagram—or as I prefer to call it, the radio-stereogram.

I do not claim any priority in this matter at all, though I do believe myself to have been one of the very early workers in this line. Some of the Denver men will remember a radio-stereogram which I showed a few years ago; it was the skiagram of a ball of wrapping twine into which I stuck a number of pins in different directions. That was my first; my second was a sheep's kidney, whose vessels I injected with plaster of paris. The picture shows the branching of these vessels very well, and I think that it gives us a hint of a fine method for the study of the circulation of various internal organs.

It is not necessary for me to dilate on the advantages of this method, as I think it will be at once apparent to all what an advance we have here. All physicians are familiar with the stereoscopic views which used to be so popular, and how much better an idea they gave of the relations of different objects in the picture to each other than did a flat picture of the same scene; and it is the same with the radio-stereogram; instead of a flat view they gave a relief effect with full perspective.

As to the technic, a plate-holder so arranged that a plate in its light-proof envelope can be inserted, withdrawn and another inserted without disturbing the patient, who is placed on it, is quite necessary.

If there are no good natural landmarks near the part to be examined, a metallic marker may be placed on the skin, its location being indicated by indelible ink or nitrate of silver; in looking for a needle do not use a piece of straight wire as a marker, and if a bullet is sought, do not use a metallic disc, for very obvious reasons.

The tube is hung from a graduated support; a point on this support is found, that is in a line perpendicular to the plate and passing through the center of the object to be examined. The tube is now placed so that the anode is a certain distance, varying according to the thickness of the part, to one side of the base point already selected on the tube support; an exposure is made, the plate withdrawn from the plate-holder. and another plate inserted. The tube is then moved so that the anode is on the other side of the base point of the support a distance equal to its former distance form it on the opposite side and another exposure is then made.

For examination, the finished plates are placed in a suitable light, side by side—there is a right and left in this arrangement—and they are then examined by means of a special stereoscope. I use plane prisms of twelve degrees, with bases out; an ordinary parlor stereoscope will not do at all.

In looking at the skiagrams, *the attention* is concentrated on the center of the picture, and the observer is rewarded by a view of the parts that gives their true perspective. There are other means of examining these negatives, but I think this is the simplest.

I have reduced some of my radio-stereograms to such a size that they may be viewed through the ordinary parlor stereoscope, and I present them herewith for inspection. Naturally, they have suffered some loss of detail in the process of reduction, but I think they will convey my idea.

By diverging the eyeballs these radio-stereograms may be examined without a stereoscope. This feat is performed by attempting to look through a point midway between the negatives or prints, and focusing the eyes for a distance far away. The pictures will gradually merge into the stereoscopic view when the proper degree of divergence is attained, and the trick will be found a very useful one in this work. Details will appear after a few seconds which are not noticed at the first glance.

SHOULD INEBRIATES BE PUNISHED FOR CRIME BY DEATH?*

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HARTFORD, CONN.

The severe criticism by lawyers and judges of medical expert testimony is often based on facts and is not altogether unjust. Physicians in the witness stand are often very stupid, and give strained interpretations of scientific facts, mixed up with opinions and theories, which give rise to a suspicion of hazy, inexact ideas, or of some personal motives. Such testimony concerning the mental condition of inebriates who have committed crime is still more confusing and doubtful. Physicians who are generally clear on other matters in their everyday life, particularly relating to questions of cause and effect, hesitate and are confused when called to describe the mental condition of persons continuously poisoned by alcohol. The toxic effects of alcohol on the organism seems to be a matter of uncertainty, but when in place of the word alcohol, arsenic or mercury is used there is great emphasis and clearness of statement. The injurious effects of alcohol are very common, while that of mercury and arsenic more or less is rare. The one is invested with delusions and stupid theories, the other is not. If with the history of inebriety is associated a neurotic ancestry, bad surroundings., irregular habits of living and occupation, why should the expert physician be in doubt as to the degree of injury and damage which the brain has sustained from the use of alcohol combined with these agents? Why should the possibility of mental soundness and capacity of control be considered in persons with this history, and how utterly farcical is the attempt to draw dividing lines where health and disease join, or where mental strength and degeneration separate? During the past year over one hundred *inebriates* have been tried and punished by death for capital crime. and the question of responsibility and the degree of sanity present was the subject of controversal testimony among a large number of medical experts. The results of these trials *indicated the profound* failure of both courts and medical *witnesses to understand* the pathology or psychology of these poor victims. *Literally*. the questions of sanity and responsibility turned on *the credulous* acceptance of erroneous theories of the *effects* of alcohol on the brain. The dogmatic assertions *that inebriety* could not excuse nor lessen the responsibility of crime, and that any toxic states before and during the commission of the act increased the culpability, were accepted by medical witnesses as if they were exact facts. Also the still more incomprehensible classification of intoxications into voluntary and involuntary forms in which free will and judgment to discriminate were present, was repeated as scientifically true beyond question. Another assumption prevailed and was unquestioned by the medical witnesses, viz., that the question of motives and the consciousness of conduct in one poisoned by alcohol could be traced with as much exactness as a stream of water is followed back to its source. The absurdity of calling states of mania or melancholia voluntary or involuntary acts and the efforts to show their boundaries and limits appeared in the testimony of several experts.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Going further, they declared that the use of alcohol was a mere habit to be put on and off at will and that at no time was the consciousness or power to discriminate concerning the nature and consequence of acts lost entirely. In one instance an expert swore that the prisoner was sane and responsible at the time the act was committed, although he had drank to great excess for years and had had many attacks of delirium, one within two weeks of the time of the commission of the crime. He also had delusions that he was to be killed by persons who wished to drive him out of the community. In another case an expert gave similar testimony where the prisoner had drink paroxysms for ten years, dating from a sunstroke, and during these paroxysms he was maniacal and destructive. In other instances similar histories of long-continued use of spirits and of pronounced toxic states were given, and the possibility of such persons being sane and responsible was so remote that it is difficult to understand why it even should be considered. The efforts of courts and attorneys to judge of crime and criminals where the toxic causes are alcohol, based on medieval theories of the operations of the brain, are common, but why physicians should accept such theories and conclusions that are literally opposed by all scientific studies is, to say the least, very startling. Nothing seems more clear than that crime. criminals, insanity, inebriety, idiocy and many other forms of degeneration are all results of distinct causes, the origin and growth of which is becoming more and more apparent with every advance of exact knowledge. Theories of moral causes in inebriety, such as that tendencies and impulses are under the control of the will at all times. are unknown and are opposed by scientific studies. The inebriate whose use of alcohol may be a symptom as well as an active cause, is diseased and has a defective brain, with a defective power of control, no matter what the appearance may be. The reality of the disease is apparent in the failure of the use of moral means and remedies, such as punishment, ridicule, persecution, suffering and loss, which make no impression and which in no way check its progressive march. If there was sanity, normal control and consciousness in the inebriate's state, those means would prevent inebriety, but the fact that they increase and actually develop the favoring causes and conditions is an indication that the degeneration is physical and not moral. The inebriate is practically less able to control or to judge the nature and character of his acts because of his defective senses and general poisoned condition. Alcohol has paralyzed both the organic and functional activities of the body, and impaired his ability to adjust himself and to understand the constantly changing conditions. The irresponsibility of the inebriate from the defective organism is confirmed by the modern studies of the physiologic action of alcohol on the brain and nervous system. No matter how it may be used, its effects are practically the same, only varying in degree. First, the action of alcohol is on the vasomotor nerve, disturbing the vascular circulation, both increasing and diminishing the flow of blood to the brain and to the surface of the body; second, the nutrition is disturbed, the oxygen-carrying properties are diminished and the toxins are increased and the vitality is lowered. The blood vessels are incapable of uniformly furnishing the proper nutrient supplies, and the supply itself is diminished in both quality and quantity. Every dose of alcohol disturbs and lowers the elasticity of the arteries, particularly in their terminals, and the normal rhythmic flow of blood essential to health is broken up. These changes are registered in the increased heart's action, vasomotor palsies, and surface congestions. This impairment of the arterial circulation is registered in the derangement of the senses, which can now be measured with great exactness. Alcohol impairs the sight. diminishes its color sense and power of discrimination; the hearing is lessened, and the co-ordination of sounds is disturbed. Both taste and touch are defective and the consciousness of the external world coming through these sources is perverted. This particular derangement of the impressions from the outside world through the avenues of the senses most seriously affects the power of reason, because such impressions are faulty and the data which they furnish misrepresents the real conditions. The brain is incapable of correctly judging of the surroundings, of the consequence, and of the nature of acts. This faulty condition of the senses extends to organic impressions within the body. The anesthetic effects from spirits promote delusions of strength and vigor, hence the inebriate never realizes the actual conditions and constantly misinterprets the impressions within the body. The co-ordinating centers and so-called consciousness of the higher relation of events are palsied, hence delusions, illusions, deliriums with stages of mania and imbecility appear from the use of spirits. These are noted in the later stages of mental disturbances which begin with the first use of spirits. The changed conduct, faulty reasoning, and emotional instability seen in inebriates is frequently an evidence of the advent of paralysis. Often these palsied effects concentrate either on the motor, the mental or the sensory centers until finally judgment, experience, duty, obligation and power of discrimination are confused or lost. The supposed clearness and activity of the mind does not represent the real condition, and is often the struggle of the co-ordinating centers to adjust themselves to the new conditions and surroundings. The appearance of health is a mask, and the organic activities of both brain and body become more and more automatic. The mind is cut out from the main circuit and does not act from the data of the present. General loss of memory, coming on suddenly and extending over a period of time, during which crime may be committed, is treated with contempt by the courts and regarded as a subterfuge and excuse for the acts committed. Many inebriates executed for crime claim that it was committed without the slightest recollection or consciousness of what they were doing. Testimony to determine the reality of this condition is seldom offered. In a study which I made some years ago of these amnesic trance states it was found to occur very frequently, and its reality did not depend on the statement of the prisoner. The general conduct and automatic character of the act committed, together with a general history of continuous toxic states, made it clear that many crimes were committed in this condition, where the degree of responsibility was entirely absent. Many of these persons had a history of epileptoid impulses and explosions with concealed or open delusions, which were overlooked as of minor importance. These are some of the pathologic states common to inebriates, particularly those who have committed crime, and who have reached chronic stages of degeneration. The conclusion can not be doubted that irresponsibility and mental failure not only to control but to judge of the relation of acts and of the surroundings is present in all chronic inebriates. Looking at this subject from another point of view, it is evident that the legal theory that inebriety is no excuse for crime and the punishment based on this theory as a deterrent and remedy for its cure and prevention is a stupid blunder, and contradicted by all experience and statistics. In the lower courts, where toxic states from alcohol and mild assaults come into recognition, the efforts to cure by fine and imprisonment not only increase the disease but make the victim more incurable. Different studies of victims punished in the lower courts show that less than 1 per cent. received any benefit. Each effort to check these toxic states is literally a form of education increasing the debility, lessening the control and precipitating the victim lower and lower; thus the inebriate and pauper criminals are cultivated by the blundering efforts to prevent and to cure this condition. Of the hundred inebriates executed last year over 70 per cent, had been punished in the lower courts for minor acts, and the final culmination in capital crime was the natural consequence of a series of events which could have been predicted and which was almost certain to follow as the natural result from distinct causes. In one case, from the beginning there was continuous anesthesia and palsy of the higher brain centers and of the sensory activities, which went from bad to worse, making the victim more and more unable to understand the nature and consequence of acts. Notwithstanding this experience, the same methods are pursued and the same reasoning followed, that intimidation, fear and suffering will give some new power of control not exercised before. The same theories prevail in the higher courts, where the death penalty is supposed to check the use of alcohol and to prevent persons from committing crime while under its influence. These legal fictions are stated so emphatically that the thoughtless experts credulously accept them as true, actually believing that crimes committed while suffering from the toxic effects of alcohol may be, and are, the voluntary acts of sane minds. When the absurdity of this premise is pressed, the answer is that the mind was sane at the beginning and knew the consequences following the use of spirits. Another legal fiction has been accepted as an exact fact, that evidence of premeditation in the act is an indication of normal reasoning in the inebriate. Still another legal fiction is prominent in the supposition that a purpose or motive previously formed could be conceived and materialized in a brain continuously clouded by alcohol. And, lastly, the most astonishing blunder is that of attempting to point out fixed periods in the operations of the inebriate's mind where sanity and responsibility joined insanity and irresponsibility. In one instance a prisoner had been arrested many times for sudden, unprovoked assaults, evidently the result of concealed delusions, yet the medical experts could not find evidences of an unsound brain. His volubility and the clearness of his statements seemed stronger proof of his sanity than years of insane conduct. Another patient, after ten years of the most irresponsible thought and acts, committed an atrocious crime, and in jail explained his conduct and gave reasons and talked so clearly and well, that he was convicted at once as sane and responsible. He was apparently converted and spent the last days of his life in warning others to avoid the use of spirits. This was literally concealed paresis. Another man, whose crime was sensational and whose previous life had been one of continuous alcoholic paralysis, was indignant that a defense should be made of insanity, and denied that he was irresponsible. The court accepted his statements and treated with contempt the efforts of medical experts to show the insanity of the man. These examples are common and indicate the dangerous and thoroughly futile efforts to discriminate and to point out degrees of sanity and rational appreciations of the surroundings and the consequence of acts by inebriates. Society, as well as human justice, suffers by these unreasonable efforts to punish and to destroy chronic inebriates for wrong doing. Society has no right to permit defectives to grow up unnoticed, and to be educated to acts of violence and destruction, and then to hold them responsible and to punish them as sane. The inebriate murderer should never be put on trial in public, and the farcical question of his sanity and responsibility made the subject of public discussion. One great fault at present is the failure and hesitation of the medical profession to defend the teachings of science, particularly when these are opposed to the theories of courts and to the delusions of the present.

Some of the conclusions which the scientific studies of the present make prominent may be stated as follows: First, the present legal treatment of inebriety and the efforts to apply preventive and deterrent remedies is a failure.

Second, science has proved beyond question that the action of alcohol is an anesthetic and depressant, and that its continuous use is followed by sensory and motor impairments, and also by poisoning and starvation of the brain and nervous system, hence sanity and responsibility is not possible.

Third, the object of the state, through the law, to prevent crime and to protect society from criminal inebriates by dealing with them as sound and responsible, fails in every particular.

Fourth, the fear that the plea of insanity in crime and the failure to inflict punishment is an excuse and encouragement for crime, is opposed by all statistics and experience.

Fifth, the inebriate should never be punished by death, for crime committed under the influence of alcohol, because he is not mentally sound. Such punishment surrounds the criminal with a contagion which leads other defectives to repeat these very acts.

Sixth, the question of responsibility in inebriety should never be made the subject of medical controversy.

The fact of excessive use of alcohol should be accepted as evidence of mental impairment and of inability to control acts and conduct. The medical examination will show this impairment, and the patient should be committed to institutional care and treatment. Physicians called to give evidence of the sanity and responsibility of inebriates should give their views entirely from the facts of the neurotic heredity with the spirit and drug history. The more thoroughly these are known the more accurately conditions of the brain can be determined. The question is one of cause and effect; not of theory nor of legal dictum, but of actual fact, with the legal application of which the expert has no concern.

DISCUSSION.

Dr. Brooks F. Beebe, Cincinnati, stated that many medical witnesses are not medical experts. They do not know the subject, and yet their testimony will go for as much on the witness-stand, often, as that of Dr. Crothers himself, simply because the laws have been made through ignorance and not on a scientific basis and, therefore, are altogether wrong. There is no question in the medical man's mind as to when an individual is responsible and when he is not. The line is clearly drawn, the difference being one of habit or disease. One individual goes out and takes one glass of whisky or two glasses of whisky and stops as he chooses; in the other case a man takes one glass of whisky and he can not be prevented from going on a spree. They may have an equal amount of knowledge, but not of will power. If it is simply a bad habit, the man is responsible for taking the alcohol and for all its consequences. On the other hand, if there is lessened will power, disease exists to that extent and irresponsibility follows. The method of punishment of these alcoholic criminals is all wrong. In Cincinnati the cases are tried in a police court. A man goes on a little drunk and is sent up to the workhouse for 30, 60 or 100 days. He comes out and in a very short time goes on another spree. When a police officer was asked what proportion of them returned, he said that more than two-thirds of them were sent to the workhouse more than once, many flitting from one to the other for years and years. If responsible, as some of them probably are, they should be sent to the workhouse, but doubling up the time with each new arrest, giving them 60 instead of 30 days, 120 instead of 60 days, and so on. Old offenders should spend part of their time in the workhouse being treated for their diseases—medicinally and otherwise—part of the time being spent in working for themselves and for their families, and in this way they may get back into a healthy condition. It is not a question of punishment altogether. It is a question mostly of curing the disease. Certainly an individual has no right to walk the streets and do harm; certainly the public has a right to be protected, but the state is in duty bound to take care of an individual in the proper manner. The state owes a duty to the criminal in more ways than one; to take care of him and of his children. Such people have no more right to marry and to propagate offspring than have the tuberculous or people with any other diseases, and the state should look after those cases also. Let physicians help to make laws permitting no one to marry unless he has a certificate of health and good character. The prevention of crime will be accomplished more readily by preventing propagation of the species than by punishing irresponsible diseases.

Dr. S. M. Crowell, Charlotte, N. C., said that physicians as well as the laity are too prone to look on these diseases as loathsome habits which do not need scientific consideration. The city recorder of Charlotte said that he was thinking seriously of forming a bill to be introduced in the next legislature to provide a treatment for these cases. Under its provisions, instead of sending a chronic case to work on the county roads, he would sentence him to a county sanatorium provided by the state legislature. Then, after a proper course of treatment, if the case should again appear before him for a similar offense, he would consider punishing him in some way.

Dr. Albert E. Sterne, Indianapolis, declared that if the first law of nature is the preservation of liberty, then the punishment of the chronic alcoholic for crime is against natural law. Is not the mere fact that the person is satisfied and is willing to spend three-fourths of his life in prison *prima facie* evidence that the reason and judgment of the man is at fault? The mere fact that he goes to prison time and again and is released only to be sent back again within twenty-four hours shows that it is not a habit and that the man is mentally unsound, that he possesses no judgment and exercises no judgment. That man is sick; he needs treatment; he needs to be incarcerated in a place where he will be treated, not where he will be surrounded by influences more deteriorating than those from which he was removed. A bill was introduced into the Indiana legislature two years ago, which was lost because the man who introduced it proposed to levy a tax on druggists selling liquor, morphin and opium without the prescription of a regular and practicing physician. Of course, the druggists got together and immediately put down that bill. Now there is another one which will come up at the next session to establish a hospital for inebriates. The city hospital is the place for the acute cases, just the same as for any other acute disease.

THE MUSEUM IN MEDICAL TEACHING.

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The stress and the high pressure of modern life is felt nowhere more keenly than in the field of higher professional education. On all sides the demand is heard for a wisely simplified curriculum, for a longer term of study, for methods that will bring the ever-widening field of knowledge to be covered within the range of the personal observation and induction of an ever-multiplying number of students. To meet the difficulties of the case, educational reforms have taken place all along the line. Teaching is becoming always more objective, illustrative, the didactic method more colloquial—socratic. The student is called on to produce, even more than to acquire, to enquire, to debate, and to himself form judgments on the facts of his own observation. The laboratory system, in short, with the symposium, is replacing the lecture room and the thesis.

Nowhere are these new methods of teaching carried further than in America, and yet it appears to me that it is on this continent that the remarkable adaptation of the medical museum to this colloquial form of objective teaching is, perhaps, least understood.

In this paper I will first present the important place which the museum should and can fill in medical teaching; and secondly, I will try to show how a well-organized, well-classified museum evolves itself as a teaching mechanism of great value; presenting also the methods in use in the pathological museum of McGill University which, although still almost in their beginnings, have proved successful in developing it along these lines.

THE MUSEUM IN MEDICAL TEACHING.

In this connection Professor Huxley has said: "Without doubt there are no helps to the study of biology, or rather to some branches of it, greater than our natural history museums; but, in order to take this place in biology they must be the museums of the future. The museums of the present do not by any means do as much for us as they ought." And again: "To all those who intend to pursue physiology, and especially to those who intend to employ the working years of their life in the practice of medicine. I say there is no training so fitted, or which may be of such important service to them, as the thorough discipline in practical biologic work which I have sketched, as being pursued in the laboratory hard by."

I have come on a most interesting article, "Museums as Educational Adjuncts to Medical Colleges," a graduating thesis by M. Josiah Roberts, which obtained honorable mention in the medical department of the University of New York in 1882. This paper deals with the whole subject of the formation and functions of natural history museums, and in one section says so succinctly and so exactly what we have found true in the work in our own medical museum at McGill that I quote from it fully. Mr. Roberts says:

"How can the museum thus collected be made most useful? I would answer: Use the material thus collected as the basis for a course of museum laboratory instruction which will train young minds to do accurate observational work, thus developing the three great functions of the intellect, discrimination, agreement and retentiveness, while at the same time increasing the extent and diffusion of biologic knowledge. The true functions of our medical museums, in addition to providing for public instruction, should be to afford facilities for a course of instruction which will give medical students the opportunity to personally observe facts, and the impressions which will follow will be clear, definite, permanent, and hence far more valuable than any plagiarized information taken from books. If this kind of training, which it is so desirable that every medical student should have, can be obtained by a graded and systematic course of observational study on these forms, a knowledge of which has a direct practical bearing on the professional duties for which he is trying to fit himself, I think the evidence is *prima facie*, that the time is now ripe when at least the first tentative step should be taken toward its realization."

Mr. Jonathan Hutchinson,[1] in a descriptive sketch of his "Clinical Museum," says: "I venture to assert that I can give to anyone who will go round these rooms with me and inspect the associated series which are devoted, for example, to injuries of the head, rhinoscleroma, etc., far clearer and more definite views in the course of ten minutes than could be gained by a week's reading."

To the above quotations may be added the fruit of our own experience during the past few years in the pathological museum of McGill University. Of this I would say, and I can not speak too strongly, that, given a medical museum with a good material on its shelves and in storage, a good system of classification, and an active medical officer in charge, and the conditions are presented for a laboratory system of great scope and of remarkable efficiency. Here facts, showing the thousand gradations and variations of disease, are presented in their correlated order, or in sharper contrast, at first hand to the observation of the student. His native powers of observation, judgment and induction are at once elicited; he obtains a new understanding of what he has read of and seen elsewhere, and a keener enthusiasm for his work at the bedside. And this gain of knowledge, or insight into disease, is acquired without a strain on his memory, but rather with the mental relief which comes from seeing in their simplicity conditions the abstract ideas of which it has required often a powerful effort to carry in his mind. The organized museum is to general pathology what the autopsy room is to medicine, what dissection is to anatomy, what—to go further afield—traveling to see new countries is to the study of geography.

It is in the presentation of series of specimens in an ordered sequence that the strength of the museum system lies. Professor Virchow, writing at the opening of his own great museum in Berlin in 1901 of this teaching by means of large numbers of museum specimens illustrating allied and differing pathologic conditions, expressed the object attained in these words: "Thus will the student prepare himself for the difficult art of forming for himself out of the confusing many-sidedness of pathologic appearances, a general idea of a diseased process, even in those cases in which direct observation is impossible."[2]

THE SYSTEM IN THE PATHOLOGICAL MUSEUM OF M'GILL UNIVERSITY.

The collection of this museum was begun in 1824 when the medical faculty itself was organized. Ever since that time it has been a cherished object of the teaching staff, who have always used it largely in illustrating their didactic lectures. It thus contains a rich material, which has of late years been increased quite one-third, by the efforts made to fill in the gaps in the teaching series.

During the past few years much active work has been done in this museum. It has been carefully reclassified and recatalogued on a set of descriptive catalogue numbers, after a plan similar to that of the Dewey decimal system of classification in use in libraries. Especial care has been taken to preserve the natural colors of organs by the methods of Kaiserling and Jores, and specimens are carefully mounted on glass frames so as to preserve their anatomic relations, and to show the pathologic lesion to the greatest advantage to the student. And a curator is on duty whose especial function it is to develop the museum as a teaching organ and to fill in gaps in its teaching series by representing the specimens needed to the pathologists of the two great city hospitals, a curator who also has ample time to place at the disposal of the students.

Under these conditions the usefulness of the museum to the students has developed beyond the expectations of those engaged in the work. It has already become a self-teaching mechanism, the possibilities of which as a supplement to both clinical and postmortem work are almost unlimited.

THE GENERAL ARRANGEMENT OF THE MUSEUM.

The museum proper now consists of a suite of four rooms communicating with the curator's office and a large lecture room used by the professor of pathology for his lectures on that subject. Of these rooms, the largest and best lighted is the one in which the majority of the moist specimens are kept. It is supplied with a number of large tables fitted with movable shelving, which are used for demonstration and exhibition purposes, or, with the shelving removed, for the writing of descriptive exercises. Of these tables, the largest runs down the center of the room, and is fitted with a double tier of two steps so that a set of three shelves is presented on either side. This table is the one used for the routine demonstration. The others have a single tier of two steps each.

Of the other museum rooms, one is devoted to the osseous system, one to the female generative system (the obstetrical and gynecological museum), and one to the medicolegal collection.

The curator's room is fitted with abundant shelving. Here all new specimens are received, are given a consecutive entry number in the museum entry book, and are filed on the shelves, classified under organs. These curator's specimens are added from time to time to the museum as the occasion arises or the opportunity for mounting occurs.

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[1] British Med. Jour., Dec. 9, 1893.

[2] Virchow: Das Neue Path. Museum zu Berlin, 1901.

An end of the obstetrical museum is railed off for "hand-specimens" of the different organs. These are duplicates of specimens already in the museum, which may be removed from the jars at will by lecturer or student. The remaining museum apartments in the other parts of the building are the maceration room, the preparation room and an extra storage room in the basement.

THE CLASSIFICATION.

The museum is arranged on an anatomic classification with a pathologic subclassification. It is necessary to emphasize this particular, because, although the exact form of classification in use is not essential, it appears to me that a detailed method of some kind is absolutely necessary to the development of a true teaching museum. And the decimal system of descriptive catalogue numbers recently applied here after a plan suggested by the late Prof. Wyatt Johnston, has been so practical in its results and working that it can not be passed by, although a full account of it has already been published elsewhere.[3]

The museum is divided into ten sections corresponding to the ten systems of the body. Each system is subdivided into its different organs, which are placed in order under its section, the specimens arranged under each organ according to the pathologic classification, of which there are likewise ten main divisions, with subdivisions of these as in the anatomic classification. In the descriptive catalogue number the anatomic condition precedes, and the pathologic follows the decimal point, while the particular specimen is indicated by a small index figure to the right of the catalogue number. Thus if 11. represent the pericardium, and .34 fibrinous inflammation, 11.34^1 means the first specimen on the shelf of fibrinous inflammation of the pericardium.

The museum is thus divided into the following sections, each of which is labeled and numbered:

Systems.—1, the circulatory; 2, respiratory; 3, digestive; 4, glandular; 5, urogenital; 6, female generative; 7, nervous; 8, muscular and tegumentary; 9, osseous; 10, regional.

These are again subdivided as follows (each subdivision in the museum bearing the name and number of the organ belonging there):

Organs.—11, pericardium; 12, heart and myocardium; 13, endocardium; 14, arteries; 15, veins.

Twenty-one, nose; 22, larynx; 23, trachea and bronchi; 24, lung; 25, pleura.

The main divisions of the pathologic classification are: .1, anomalies; .2, circulatory disturbances; .3, inflammatory; .4, infections and parasites; .5, granulomata and general diseases; .6, progressive changes; .7, degenerations; .8, wounds and injuries; .9, specific artefacts; .0, general and supplementary.

Into the subdivisions of the pathologic classification it is unnecessary to enter here, as it is the subordinate classification in the museum and, moreover, is only detailed in those departments in which there are many varieties of a given condition, as in the inflammations of the pericardium, anomalies of the heart, etc. Nor is it adhered to strictly in order of teaching wherever convenience or clearness suggests it should be set aside; only the specimens bear their descriptive numbers and so always stand in the same order on the shelves; while, if no circumstance give another direction to one's thought, one's mind has always a definite order to follow in the presentation of ideas.

The order of the anatomic classification, on the other hand, is strictly adhered to. It is followed exactly in the systematic demonstrations one department after another being gone over in rotation, in the order of all specimens wherever filed away, and in all notices sent out. And this is found conducive to celerity and thoroughness.

So much for the general arrangement and classification of the museum. The work done there for and among the students may be summarized under the following heads:

1. The development of teaching series.
2. The supplying of lecture rooms and clinics with illustrative material.
3. The systematic demonstrations to students.
4. The exhibitions to students and to the teaching staff.
5. Written descriptive exercises on museum specimens.

THE DEVELOPMENT OF TEACHING SERIES.

In the application of the descriptive catalogue numbers, in responding to the demands of the lecturers or clinicians for material to illustrate their didactic work, in elaborating the descriptive catalogue, and most of all in the systematic instruction of students within the museum, the curator becomes aware of the lack of specimens illustrating given pathologic conditions. From time to time a circular of information is issued to the pathologists of the city hospitals informing them of the *lacunæ* in the collection.

ILLUSTRATION OF LECTURES AND CLINICS.

The lecture rooms are, of course, supplied at request, and also the clinics at the hospitals, when desired. Strong baskets are kept for this latter purpose, and borrowers' forms, "returnable in 48 hours," are signed. The very valuable specimens are, of course, not sent out in this way, but the demand can generally be met usefully, the need only being to supplement the teaching collections which are kept at the hospitals themselves.

THE TEACHING OF STUDENTS WITHIN THE MUSEUM.

All the work done in the museum, both descriptive exercises and the regular demonstrations, is entirely voluntary, a matter arranged between the curator, with the sanction and encouragement of the director of the museum, and the students, through their class president. The work has no place on the curriculum, and the only hour left free for it has been 8 a. m. The attendance and the descriptive exercises done do not raise the students' standing in any way.

These circumstances have rather helped than retarded the development of the classes. A high average attendance of the best men in the year is always to be had; the morning hour finds everyone fresh and untired.

THE MUSEUM DEMONSTRATIONS.

So far, these have been given to the fourth year only, which is divided into five groups of some twenty men each, each group coming in one morning in the week. It has been found expedient to make the groups rotate during successive weeks, as in the course of the repeated demonstrations of the same material interesting points are brought out, so that classes held at the end of the week have the advantage. Saturday morning is kept free and is used to respond to the special requests of some few of the students who may wish some point in the week's work reviewed.

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[3] American Medicine, April 3, 1903.

In the demonstrations, the order of the anatomic classification is followed around the whole museum, every organ being examined in rotation until all the museum material of real interest has been shown.

The method used in showing the material is entirely descriptive, and "quizzing." The specimens are arranged in order on one side of the shelving of the long center table, and in a short introductory talk of some five minutes (during which also as much as possible is done by questions), an attempt is made to bring forward the salient points in the series to be studied. Sufficient jars are then given out to a few of the class to keep the whole group busy, and a couple of minutes is allowed for preliminary examination of the individual specimens before quizzing on one of them is begun. The group is small enough to allow all present to see the specimen under consideration, and there is room for difference of opinion and for the introduction of many other specimens for purposes of illustration and explanation of disputed points. Discussion is encouraged and a set of standard text-books is at hand for reference, and the clinical notes of the cases where these are available.

In these demonstrations, covering as they do so wide a field, the special pathology of the internal organs, the surgical pathology of bone, the diseases of the special senses, the pathology of obstetrics and gynecology, the curator does not attempt to teach the student as one especially informed along any line, but only to lead him in the study of the specimen for himself, while bringing to his notice, in the quickest possible way, all the illustrations of a given fact that the museum affords.

THE EXHIBITIONS.

At the close of the week's demonstration, the organ which has been studied by the different groups in rotation is transferred to the shelving on the other side of the table to make room for the series of the week following. There it is kept on "exhibition," with the descriptive card catalogue at hand for purposes of review by the student. As the other organs of this system are studied, they also are placed "on exhibition," the other tables with shelving being called into use when necessary. When the demonstrations on this system are completed, or at a certain point in it if the material is very extensive, a pause is made in the morning grinds. The system, or a part of it, having been meantime arranged in first-rate order by mounting the specimens used from storage to fill in gaps in the teaching series, by re-labeling, etc., is declared "on exhibition" by a notice posted to the students and by circulars issued to the members of the teaching staff.

These circulars are sent to the teaching staff to stimulate their interest and also to give them an opportunity of informing themselves of what the museum contains.

For a week or more, reviews are held on parts of the system on exhibition at the request of the students. The systematic "grinds" are then resumed.

In March, when the sessional work becomes very heavy, the regular demonstrations stop, and the opportunity is now taken for the "Annual Exhibition," when all specimens that have been mounted during the current year, having been catalogued and carded, are placed "on exhibition," for the benefit of faculty and students alike, before being placed on the shelves. Much informal demonstrating is done while this exhibition continues.

It is common also for some of the lecturers in the different departments and for some of the clinicians to request the collaboration of the curator in the illustration of their subject within the museum. The series requested is placed "on exhibition" within the museum and is either demonstrated by the lecturer himself or informally by the curator to successive groups.

STUDENTS' DESCRIPTIVE EXERCISES.

Specimens of a given condition, with three or four others, showing allied or differing conditions, are allotted to the student, to be worked out at hours of his own choosing. Museum forms are supplied having the following directions stamped in the upper left-hand corner (for which purpose a rubber stamp is kept):

Subject, ...; Date, ...; Spec. No., ...; Name, ...; No., ... Describe briefly the conditions shown in the specimen, commencing by an epitomized anatomic diagnosis and then describing fully first the anatomic and then the pathologic appearances. Indicate doubtful appearances by the sign (?). *On the reverse side of the sheet* mention the most important allied or associated conditions not shown in the specimen. Point out the points of similarity and difference in the specimens of allied conditions allotted for comparison.

This rubber stamp was presented by the late Professor Wyatt Johnston, whose suggestion these descriptive exercises were. Although the time of the student is too limited for extensive work of this kind, each one can manage three or four of these sheets, and as an introduction to the work in the museum, familiarizing the student with the descriptive method that is attempted in all the oral work, and in making him realize the immense value that the careful study of a single diseased organ is to him, these exercises are simply invaluable. I ascribe the success of the museum demonstrations later in the season largely to the effort made in the beginning by the student himself on these descriptive exercises, which are issued in the first six weeks of the term.

DEMONSTRATIONS TO STUDENTS.

I would like to close this outline of the system in use here with some further details on the museum demonstrations to students. As has been said, it is in the presentation of a series of specimens in an ordered sequence that the strength of the museum system lies. In every such series, salient points will be elicited and made clear which will often have been obscure or difficult. Atelectasis, bronchiectasis, and infarction, the processes of inflammation, and of sequestrum formation in bone; the alterations in the chambers of the heart resulting from changes in the cardio-vascular system; the differing lesions of the intestine in typhoid, tuberculosis, lymphosarcoma and leukemia; fetal anomalies; these are but a few examples of the miscellaneous difficulties which a simple classification makes plain to the student, so that he who runs may read.

The following synopsis of some of the demonstrations on the circulatory system may serve as an illustration of the series shown, and of some of the points elicited.

INFLAMMATIONS AND DEGENERATIONS OF THE PERICARDIUM.

Specimens are shown of fibrinous, sero-fibrinous and plastic inflammations; of the hemorrhagic and purulent forms. Of chronic conditions are shown simple thickening and opacity of the pericardium, *complete and partial synechia* of its layers, milk spots, localized tags of adhesions, mediastino-pericarditis and calcification of the organized products of a past inflammation.

The difference in the gross appearances of fibrin, an inflammatory exudate covering the acutely inflamed serous membrane, and the fibrous tissue of an old inflammation that has undergone organization, is emphasized.

In severe grades of pericarditis, a myocarditis by contiguity is seen, and frequently a pancarditis, the whole heart becoming inflamed. Also it is noted that in a mediastino-pericarditis the conditions are presented for the development of physical signs during life, while in a simple adhesion of the layers to each other, no such signs need occur.

CHRONIC ENDOCARDITIS.

Under this we understand several different processes: First—A slow sclerosing process, chronic from the onset. Second—A fibroid change, beginning in absorption of the products of inflammation, often continuing on far beyond the seat and the time limit of the initial lesion, and resulting in atheromatous and calcareous change. Third—The term chronic inflammation is often used as a misnomer for heart lesions which are the result of a past inflammation, although no true inflammatory process nor anything but the direct results of the mechanical changes in the heart is now at work.

In considering the subject of chronic endocarditis, the important point is the lesions that are left behind. We will look at fusion of the segments of the semilunar and auriculo-ventricular valves, shortening of the chordæ tendinæ, crumpling, binding down, fore-shortening of the semilunar cusps—all the conditions, in short, that go to produce a valvular stenosis or insufficiency.

HYPERTROPHIES AND DILATIONS OF THE HEART AND SIMPLE ATROPHY.

In examining this series of alterations in the capacity and volume of the different chambers of the heart, or of the heart as a whole in their different degrees and combinations, together with the causes in operation that have produced these alterations, the mechanics of the condition are made much plainer than they can be at the bedside or in the postmortem room in the examination of an isolated case. In every case of extra strain on the heart, whether from extracardiac rise of pressure or from intracardiac leakages, there is a physiologic dilatation first, due to the increased size of the cavity resulting from the physiologically hypertrophied and therefore extended wall. Later on, when the hypertrophy can not meet the strain any longer, a pathologic dilatation results, and the patient dies. These points are illustrated in the specimens, as also another, that it is the chamber or chambers behind an obstruction that dilates and hypertrophies.

The following specimens are shown: Normal heart, simple atrophy of the heart in asthenic state; simple acute dilatation of the heart (parchment heart); so-called concentric hypertrophy (hypertrophy with relatively little dilatation) of the left ventricle in aortic stenosis (two cases); idiopathic hypertrophy and dilatation of the heart in overwork; hypertrophy and dilatation of the heart in arteriosclerosis, with arteriosclerotic kidneys; cor bovinum of aortic insufficiency—an enormous left ventricle with a wide cavity; cor bovinum in aortic insufficiency, with atheroma of the aorta and arteriosclerosis—an enormous heart; hypertrophy and dilatation of the heart in aortic insufficiency, with atheroma of the aorta and marked atheroma of the coronaries—a moderately enlarged heart with a greatly dilated left ventricle, pathologic dilatation having set in comparatively early before hypertrophy had gone very far: heart in mitral stenosis, showing dilatation and hypertrophy of left auricle and enlarged right heart; heart in mitral insufficiency; cor bovinum in complete *concretio pericardii cum corde* with mediastino-pericarditis; hearts showing combined valvular lesions.

In conclusion, I would express my obligation in this work to Professor Adami, director of the museum, and to the late Professor Wyatt Johnston. The museum teaching has been developed with Dr. Adami's support and kind encouragement, while many of the ideas on which the museum system is based have been elaborated at Dr. Johnston's direct initiation and suggestion. To the artistic mounting of the specimens by the preparator, Mr. Judah, much of their usefulness to the students is also due.

DIPHTHERIA INFECTION IN MINNESOTA.

RECENT EXPERIENCES WITH THE DISEASE IN SCHOOL CHILDREN AND IN INSTITUTIONAL EPIDEMICS.*

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It is not the purpose of this communication to enter into the minute consideration of all phases of the prevention and eradication of diphtheria, but to present briefly the general features of some of the methods which have been found practicable in Minnesota and in which the laboratory has been used as the guide to executive action and restrictive measures.

In the work of the Minnesota State Board of Health, the problems have naturally arranged themselves into three main groups.

I. The routine work of dealing with diphtheria as it occurs in family life.

II. Widespread epidemics in which the day schools have to be closed.

III. Infection which gains entrance into institutions in which children or other inmates are housed, employed, taught or confined, and where great opportunity for the spread of infection is present.

I. DIPHTHERIA IN FAMILY LIFE.

The routine work of the State Board of Health is probably but little different in Minnesota from that in other parts of America except that it is confined largely to country towns, villages, small cities and rural communities. In general, isolation of suspicious cases is followed by the imposition of official quarantine, based on a positive report mailed or telegraphed from the laboratory of the board to the attending physician and the local health officer. Quarantine is maintained until a negative report or, when practicable, two successive negatives are made on throat cultures.

Modified Löffler's serum made by a rapid process is employed for the culture medium. This contains 1.25 per cent. of glycerin, the tubes are covered with rubber caps and the medium remains fit for use for twelve to eighteen months. Löffler's methylene blue is used for staining. Unless positive, no report is given on fresh preparations or, in fact, on anything other than a satisfactory culture made at the bedside, forwarded by the local physician and incubated in the laboratory for eighteen hours. In villages and towns, as also in smaller cities, no difficulties are presented, and the use of the laboratory is becoming more widespread. In country districts where it is necessary for physicians to make long journeys in order to see their patients, or where there are not physicians available, it is sometimes impractical to insist on a rigid adherence to the methods outlined for general use. Physicians are urged, and the public is educated, to take advantage of the laboratory diagnosis as a means of shortening the quarantine period and minimizing the dangers of infection.

Observations covering the years 1901 and 1902 have shown that in clinical cases of this disease diphtheria bacilli have disappeared in 3 per cent. by the 7th day.

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* Presented before the American Public Health Association, Havana, Cuba

27 per cent. by the 14th day, 51 per cent. by the 21st day, 83 per cent. by the 28th day, 93 per cent. by the 35th day and 100 per cent by the 70th day.

There is an occasional long persistence of the virulent types of *B. diphtheriæ*. One has been under observation within the last few weeks. A schoolgirl, aged 10 years, under the care of her father, one of Minnesota's best physicians and health officers, was found to harbor diphtheria bacilli for 109 days. On the 72d day the bacilli were isolated in purity, tested and found fully virulent. A school teacher, a young woman, aged 20, who had clinical diphtheria, still shows that typical diphtheria bacilli, which have been demonstrated by 13 successive positive examinations, have persisted for 71 days.[1] A boy, aged 5, still had diphtheria bacilli present (Jan. 2, 1905), i. e., 79 days since the disease began. On the 46th day the bacilli isolated in purity were virulent for guinea-pigs. Notwithstanding these occasional instances of long persistence, it is plain to all who have studied the question that the laboratory report on the presence or absence of the diphtheria bacillus affords the only satisfactory basis of quarantine.

In Minnesota, when laboratory examination is impracticable, an optional time limit of four weeks from the date of the disappearance of last symptoms is permitted, but not encouraged. The laboratory examination will, in most cases, very greatly shorten this time and, since it is the presence or absence of the diphtheria bacillus which constitutes the danger or freedom from danger, the laboratory examination is the only basis of quarantine which should be permitted. All members of a household in which diphtheria is present should be examined, and quarantine should be maintained on those who show the presence of typical diphtheria bacilli. The fact that similar bacilli have shown themselves to be virulent for human beings by the production of symptoms in a member of the family may be taken as initial presumptive evidence that any of the bacilli which are present in that particular household may be virulent.

II. INFECTION DEMANDING ACTION ON THE PART OF THE SCHOOL AUTHORITIES.

When diphtheria becomes widely distributed in a community necessitating the closing of the day schools or when the disease has persisted throughout the summer months, appeal is often made to the Minnesota State Board of Health for aid in determining a safe course which will enable the authorities to keep the schools open without endangering the health of the public.

Within the last five years this problem has frequently presented itself and by degrees a simple system has been evolved which has been found to yield most satisfactory results. It requires harmony between the local board of health and the school authorities if, without the constant supervision of some member of the executive or laboratory staff of the State Board of Health, the local authorities are to be depended on to carry out the necessary details.

In one very recent investigation, a most efficient medical health officer happened also to be chairman of the local school board; and except for ten days' time given to the inauguration of the work and the illustration of methods of tracing infection and some slight technical instruction, the work has been carried out entirely by the local authorities. The actual bacteriologic examination and report are made, of course, by the laboratory staff of the State Board of Health.

The only remaining factors necessary to successful work are the requisite executive authority, the confidence of the public and a fully equipped laboratory with a staff capable of meeting satisfactorily such emergencies. In this school and institutional work the demand on the laboratory is at times rather heavy. As an illustration, in 1897 and 1898, one member of the staff of the Minnesota State Board of Health made and examined in three months over 5,000 cultures in the branch laboratory established for the purpose, and supervised the necessary work of isolation, disinfection and recording.

In the last month (December, 1904), in addition to other heavy routine work and considerable traveling, it has been necessary for the laboratory staff to examine, record and report on over 3,500 diphtheria specimens, or nearly 9,300 for the four months ending Jan. 1, 1905. The necessity for a smoothly working system is thus made apparent, since the school openings all occur at the same time, and several investigations may be in progress at one time, each one involving the examination and supervision of from 100 to 450 children. The work may, perhaps, best be illustrated by quoting directly from one or two of a large number of such investigations.

During the year 1900 Park Rapids, a town of about 1,000 inhabitants situated in a lumbering community 350 miles from the laboratory, became badly infected with diphtheria. Not only school children, but adults also were attacked. The neighboring lumber camps and tributary territory became involved, and the disease persisted throughout the winter and did not disappear even in the late summer months, owing to repeated reinfection from outside sources. In August, 1901, on the appeal of the locality, the executive officer of the State Board of Health and the director of its laboratory visited the town to investigate conditions and outline methods for the control of the disease which would interfere as little as possible with the routine of affairs and which might still permit the opening of the schools, to which the citizens had looked forward with dread.

A careful study was made, and all cases of diphtheria then in existence were investigated and all rumors and suspicions of possible cases were followed up. At a joint meeting of the town council and school board, matters were thoroughly discussed, and it was recommended:

1. That the opening of school be deferred.
2. That the teacher and children of each room in the school be called together at the school at a specified time on a particular day to be set for each room and publicly announced.
3. That a representative of the State Board of Health be present who would take nose and throat cultures of each one of the children. The cultures were to be forwarded to the laboratory for examination and report.
4. That each child and each teacher who showed diphtheria bacilli be excluded from school until he and all of his family were found free of infection.

Dr. E. H. Beckman of the laboratory went to the town and spent nearly two weeks in this work of taking cultures and investigating the environments and history of all families in which positive laboratory findings were reported, and in securing and recording data, including maps, showing location, distribution and dates of infection. As a result, over 350 school children were examined, more than 1,200 examinations made, school opened one week late, and diphtheria disappeared under the conditions and at the time of year when there was every reason to expect its increase. The willing co-operation of the town council, school board and general public was easily secured and retained. The educational value of the work has been as apparent during the subsequent years as was the resulting practical utility at that time.

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[1] Since the paper was presented, a pure culture of diphtheria bacilli has been isolated from this patient on the 80th day and has proved fully virulent for guinea-pigs.

Since then this work has grown steadily in amount and practicability. Dr. L. B. Wilson undertook and carried forward a similar investigation on approximately the same scale at Grand Rapids, a lumbering center, in September, 1903. Owing to the occurrence of the disease in adults, such as prostitutes and employes in saloons, there were certain other practical difficulties to be met and overcome, but strict quarantine and restrictive measures were easily formulated and enforced, and the results attained were as successful as those in Park Rapids.

Work of a similar character, but on a much larger scale, has just been brought to a conclusion in Benson, a town of about 1,600 inhabitants, in a farming community, where diphtheria had persisted throughout the summer of 1904. The health officer, Dr. Scofield, is also chairman of the school board. The town council and school board stood ready to second his efforts in every direction. Dr. L. B. Wilson of the laboratory went to Benson, Sept. 6, 1904, in order to make a thorough investigation and to examine all of the school children and teachers before the opening of school. A different plan was followed here, namely, to go from house to house making careful inquiries and taking specimens of all the inmates. What was really a practical quarantine was instituted wherever individuals were found infected with diphtheria bacilli, independent of clinical manifestations, and school was not opened until all the school children and their families had been examined. On the opening of school only children who were themselves free from diphtheria bacilli and whose families were also free were permitted to attend, and as a result the disease has disappeared. During Dr. Wilson's visit, and after his return to the laboratory at the end of ten days, provision was made by the locality for the careful following up of all individuals who had come recently into contact with clinical cases, and in this way much interesting and valuable information relative to the spread of diphtheria was secured. In some instances, diphtheria bacilli were found present in exposed individuals several hours or days before the symptoms of the disease appeared.

Similar methods have been employed and comparable results obtained in a number of other places, notably Browerville, Duluth, Robbinsdale, Heron Lake, etc.

In dealing with day-school infection it therefore seems to be entirely practical to exclude infected individuals or children of infected households independent of clinical manifestations of the disease, since the school authorities are at liberty to exclude pupils perhaps more readily than it is possible to enforce strict household quarantine. In Minnesota public sentiment supports such methods and at times demands them.

By the substitution of the comparative segregation of home life for the crowding together of school life the danger of distributing or receiving infection is minimized, as the possibility of the control of diphtheria increases with approximation to individual isolation.

III. DIPHTHERIA INFECTION IN INSTITUTIONAL LIFE.

This affords a problem in which the difficulties are in direct relation to facilities afforded for the exchange of nose and throat contents between the inmates.

Among adult prisoners, especially where isolation is almost complete, there is little danger of the spread of infection. On the other hand, in charitable institutions where children are constantly associated in large groups, at play, at school, at work and in dormitory life, the chances for the spread of infection are not only greatly increased, but additional opportunities for its introduction from outside by new-comers have also to be recognized.

During the past nine years the Minnesota State Board of Health has been called on to take charge of epidemics of diphtheria in a number of state and private institutions in which the variation in conditions of life and environment was very great. These have included the State School for Dependent and Neglected Children (practically a state orphans' home of 250 or more children), State Training School (a correctional home for nearly 500 children), state hospitals for the insane (with 1,000 to 2,000 inmates), state schools for deaf, dumb, blind and feeble-minded, seminaries and schools where the students are housed, charity orphan asylums and a charity lying-in home where women are admitted and employed in some capacity for a year after their confinement. While each institution presents peculiar features and has individual difficulties which can be properly understood only by the consideration of a detailed report illustrated with maps, photographs, clinical notes and accurate data,[2] certain general features common to all may be mentioned here in relation to the measures for control.

In all, there is the massing together of individuals either in dormitory life, at meals, for instruction or religious exercises, and during employment in the fields or in work shops. This increased opportunity for exchange of the bacterial flora of nose and throat is in direct relationship to the age, intelligence and habits of the individual, as also to character of the institution and structural and other environmental conditions.

A recent investigation not yet complete may serve as an illustration of methods and results. The State School for the Deaf at Faribault provides for the housing and instruction of over 280 pupils, mostly children, but above the age of 8. Certain of the pupils are state or county charges, but all of them are returned during the summer vacation, either to their own homes or to a home provided for them. Most of the employes and teaching staff (about 50) reside not in the institution, but in the town. Diphtheria appeared Sept. 25, 1904, having been prevalent in Faribault for a number of months both in the residents and in the employes of a boarding school for girls. Owing to the increase of infection, Dr. Bracken, the executive officer of the State Board of Health, was called to give advice and aid. On his recommendation a member of the laboratory staff, Dr. McDaniel, went to the school Dec. 2, 1904, and found 17 clinical cases, 3 more appearing on the following day. The general arrangements provide dormitories for the girls, in which from six to twelve are accommodated in single beds. In a separate building similar accommodations are available for the boys, the building being divided by a wall in the center so as to separate them into two groups according to age. Meals are provided for all pupils in one dining room. A separate new school building is available for their instruction, although some pupils are still taught in the main building. The clinical cases had all been removed to the school hospital, a separate frame building.

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[2] These will appear in the biennal reports of the Minnesota State Board of Health.

Immediately all the employes and teachers were examined by nose and throat cultures for the presence of diphtheria bacilli. All infected individuals were quarantined in their homes or isolated in the institution. All who showed suspicious bacilli (other types[3] than D, C, or A) were re-examined, and if they failed to show D, C, or A on the second examination were released.

As it was impracticable to examine nose and throat cultures from all pupils in one day they were grouped according to the possibility of providing isolation in sleeping quarters. These were practically according to age and sex, the smaller children being examined first because they showed greater infection. As examination proceeded, the girls shown to be uninfected by double negative cultures of both nose and throat were housed and fed in the detached and freshly sterilized school building under the supervision of uninfected teachers. Similar arrangements were made for the boys in the manual training building. The children showing suspicious bacilli were kept in their quarters until two re-examinations had been made. The infected well children (about 28 per cent.) were isolated under the care of a nurse in the various school rooms in the north wing of the main building. Especial attention was given to the cleansing of their noses and throats by alkaline washes followed by formalin. Antitoxin in 2,000 unit doses was also administered later.

As soon as the inmates were shown to be uninfected by three successive negative nose and throat cultures they were placed with the uninfected groups which gradually increased in number, and were returned mostly to their homes, but partly to the old dormitories which had been thoroughly disinfected. Only two new clinical cases have developed since the completion of the segregation, and the disease seems to be pretty well eliminated, although there were many difficulties incident to overcrowding, some difficulties in instructing the pupils, and some due to the facts that the pathologic conditions of the nose and throat which originally gave rise to the deafness were favorable to diphtheria infection, and that the use of the sign language employed increased opportunities for infection from the hands.

A similar problem was presented at the State Hospital for the Insane, with over 1,000 inmates and employes, at St. Peter, Minn. The executive officer of the State Board of Health and the director of its laboratory had visited the institution on Oct. 15, 1904, to investigate both typhoid fever and diphtheria. The former was easily suppressed, but the latter, which had been introduced by a male nurse and later had been given by him to his fiancée, a nurse in the female wards, was not so easily managed. Dr. Bracken again visited the hospital Nov. 19, 1904, and Dr. Wilson of the laboratory staff accompanied him, and remained to inaugurate and supervise practical methods. Here, owing to overcrowding dependent on rebuilding and to the difficulties attendant on the mental condition and filthy habits of the patients, the problem was even harder. Without a detailed description a full understanding is impossible, but success has thus far been obtained.

In summarizing this work the following points are apparent:

1. An adequate laboratory staff and equipment is essential, since only by thorough laboratory examination can the presence of possible danger be determined.

2. It has been found convenient to utilize institutional laboratories when available where the members of the laboratory staff of the State Board of Health can examine cultures on the spot when there is urgent need of haste.

3. Repetition of examination of both nose and throat specimens is advisable in all cases and especially when suspicious bacilli are found.

4. The types[3] D, C and A are the virulent and important types of bacilli.

5. The individuals must be grouped into:
   - (*a*) Those showing clinical diphtheria.
   - (*b*) Those infected with types D, C or A, but who show no clinical symptoms.
   - (*c*) Those showing other types until by later examination they are definitely shown to be free of types D, C or A.
   - (*d*) Individuals who have been shown to be free of all diphtheria bacilli in both nose and throat. This group gradually increases in numbers.
   - (*e*) The uninvestigated groups in which the individuals should be kept from coming in contact with each other so far as possible, between the time of the taking of the specimens and the receipt of the report thereon. Every effort should be made to prevent exchange of nose and throat bacteria between individuals until it is definitely known whether they are infected or not. In infected individuals the bacilli will be eliminated more quickly the greater the approximation to individual isolation.

6. It is unsafe to place hitherto uninfected individuals who develop sore throat with clinical cases of diphtheria. They should be isolated until examined bacteriologically, since they may be infected not with diphtheria bacillus, but with streptococcus, the spirillum of Vincent, blastomyces or some other micro-organism, and, therefore, may be exposed unnecessarily to diphtheria infection. This has happened repeatedly in the Minnesota investigations.

7. Executive action must be taken on the basis afforded by the laboratory; therefore it is essential either that these two branches be kept in the closest touch or that in the work of inauguration and supervision of methods a laboratory trained man be placed in charge. After the system is well started, competent local medical authorities may be depended on for its continuance if they have been sufficiently impressed with the necessity of care in details.

8. That such methods will give satisfactory results, and are entirely practicable, has been shown in the experience of the Minnesota State Board of Health under conditions which present the greatest possible variation. Three epidemics have been thus suppressed in a lying-in hospital in Minneapolis where there was no adequate nursing force, where the women before and after confinement are employed in the housework of the institution, where the babies are left in charge of different mothers at different times, and where also the

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[3] Wesbrook, Wilson and McDaniel: "Varieties of *B. diphtheriæ*" Biennial Report Minnesota State Board of Health, 1899-1900, p. 613; also Transactions of Association of American Physicians, 1900, p. 198.

almost daily admission of fresh inmates adds to the opportunities for introduction of infection. A method which had proven satisfactory in lying-in hospitals, boarding schools, schools for the deaf, homes for children, insane hospitals and other such miscellaneous institutions in a climate such as that of Minnesota, would certainly seem to be capable of utilization under nearly any condition which might arise.

9. The experience of Minnesota would seem to point decidedly to the conclusion that diphtheria infection is transmitted usually by almost direct exchange of the flora of the nose and throat.

10. In institutional and school life the more independent the individual and the greater the facilities for individual isolation the greater the freedom from diphtheria infection and the easier is it to eradicate the disease.

CLINICAL EXAMINATION OF THE URINE.

A CRITICAL STUDY OF THE COMMONER METHODS.

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BOSTON.

(Concluded from page 842.)

ACUTE DEGENERATION.

In the 93 cases of this condition which I have studied, the diagnosis was correctly made in all but three. What I desire to point out here is:

1. That the urine may vary very greatly in composition in different cases, despite identical postmortem findings.

2. That in a few cases the diagnosis of something more serious than fever urine might have been made by any one accustomed to take his urinary analysis very seriously.

I will take up this latter point first. Among the cases in which only acute degeneration was discovered postmortem, there were two called acute nephritis before death, and one called chronic nephritis. Besides these there was a case of puerperal eclampsia in which a nephritis of some type was assumed to be present, and in a case in which the patient died in convulsions suspected to be of uremic origin. It is a significant fact that the urine did not enable us to come to any definite decision here, for the current teaching and text-book writing on this point would lead us to believe that if a kidney trouble had progressed far enough to cause uremia the urine would be distinctive.

But experience shows that this is not always the case. A patient comatose and hemiplegic lies before you. The urine drawn by catheter is normal in color, low in weight, contains, say, 1/8 per cent. of albumin and a good many hyaline and granular casts with cells and fat adherent. Such a urine is consistent, as my tables show, with nephritis, with passive congestion, with a simple acute degeneration or even with a kidney normal macroscopically and histologically. In the diagnosis of such a case the urine has, therefore, next to no value.

I recently saw a case of acute aphasia in an elderly woman. The diagnosis seemed to rest between a uremic aphasia and one due to a slight cerebral hemorrhage. The urine had practically the character of that just mentioned, and as there was no motor paralysis, no coma but considerable nausea and headache, there was a good deal to support the diagnosis of uremia. Yet the patient made a prompt and complete recovery, and the urine was normal within a week. What the case shows is that a urine must be very bad, the amount of albumin and the number of casts very large before we can safely say "That urine could only have come from a kidney of nephritis," and even then, unless dropsy is present, we shall now and then be proved wrong, as will be shown below.

Before beginning the discussion of a group of cases in which nephritis was diagnosed during life, but only acute degeneration found after death, I want to anticipate the objection that the postmortem lesions which I have called acute degeneration may have been just what others would have termed acute nephritis of a degenerative or desquamative type. If this were true, the discrepancies between antemortem and postmortem records on which I am about to dilate would cease to have a meaning.

Let me, therefore, explain why I call these cases acute degeneration and refuse them the name of nephritis. By acute degeneration I mean only such a degree of granular or fatty change in the epithelium of the tubules as is to be found postmortem in almost every fatal case of typhoid, pneumonia or other infectious disease. Hardly any kidney is totally without a certain degree of these degenerative changes postmortem, and in infectious diseases they become more marked. But we do not think it advisable to say that all these cases have nephritis. If we did we should be forced to the paradox that almost everybody has a certain amount of nephritis when he dies.

Granular or slight fatty changes in the tubules alone —the glomeruli, interstitial tissues and vessels remaining otherwise normal—do not, in my opinion, deserve to be associated with the term nephritis, because this term naturally and properly calls up in our minds a clinical symptom-complex which is totally absent in these cases, and because the term is not one which we are prepared to associate with every fatal case of an infectious disease.

With so much of preface and preliminary defense, I pass on to mention a group of cases in which nephritis, Bright's disease in its ordinary sense, was diagnosed during life and only degenerative lesion of greater or less extent found postmortem. (See also Table 7, Cases 4, 5, 9 and 11.)

CASE 1.—Bronchopneumonia found postmortem to be tuberculous in origin, but supposed during life to be associated with an acute nephritis.

Urine.—The 24-hour amount was reduced to 300 c.c., with 1.7 per cent. of urea, and albumin amounting to .5 per cent. as measured by Esbach's apparatus was present, while the sediment contained scanty hyaline and granular casts.

Is not this enough for a diagnosis of nephritis? We can not say "yes" in view of the fact that none was found postmortem. But if we say "no, that urine is not bad enough to call nephritis, for, though the amount is but 300 c.c., and the albumin .5 per cent., the casts were scanty and only of the hyaline and granular varieties"— if we say this, what are we to make of that series of 19 cases of acute glomerular nephritis, in many of which the casts were no more numerous than in this case, and the other features of the urine less alarming?

CASE 2.—An Italian, 27 years old, was brought to the Massachusetts General Hospital entirely unconscious, having been taken from a vessel which had stopped at several South American ports. No history was obtainable.

Examination.—His temperature was 102.8, with moderate leucocytosis, and evidence of slight solidification of the apex of the left lung. The abdominal viscera showed nothing abnormal so far as we could demonstrate. The neck was moderately retracted and stiff.

Urine.—Fourteen ounces of urine were drawn by catheter and found to contain over .5 per cent. of albumin. The urine was high colored but not distinctly bloody, and the specific gravity, 1,017. The sediment showed from 10 to 20 casts in every field of a No. 5 Leitz objective. The casts were mainly granular—a few epithelial.

Blood.—Prolonged examination of the blood excluded malaria. Yellow fever, cerebrospinal meningitis and uremia were considered, but as there was no definite evidence for the former of these and as the fluid obtained by lumbar puncture showed no growth, the diagnosis of uremia seemed most reasonable.

Autopsy.—At the autopsy, Dr. Wright found cerebrospinal meningitis, due to the *diplococcus intracellularis*. The kidneys showed absolutely nothing abnormal so far as Dr. Wright could determine, either macroscopically or microscopically.

CASE 3.—More recently a case was admitted to the surgical wards of the Massachusetts General Hospital, for relief of an abdominal tumor, which turned out on exploratory laparotomy to be an aneurism. Prior to the operation the urine was normal, but immediately afterwards its quantity fell to 500 c.c. in twenty-four hours, and never arose above that amount during the week, at the end of which he died.

Urine.—During this period the urine was pale, turbid, with a specific gravity ranging near 1,014 and about .7 per cent. of albumin (Esbach). Among the casts, which were very numerous, were many highly refractile, dense ones.

Autopsy.—The diagnosis at the time of death was uremia, but at autopsy absolutely nothing abnormal was found in the kidneys, macroscopically or microscopically.

CASE 4.—The clinical diagnosis stands on the record book: "Pneumococcus bronchitis with acute nephritis." The patient ran a fever varying between 101 and 103 for two months. There was rusty sputum loaded with *pneumococci.* General edema gradually developed and as death approached fluid accumulated in each pleural cavity.

Urine.—During the first two weeks of her stay in the hospital the patient's urine averaged about 1,000 c.c. in 24 hours, with a specific gravity of 1,016, .25 per cent albumin and 1 per cent urea. The sediment showed very many hyaline and granular casts of all sizes, a few epithelial blood and fibrinous casts. Considerable fat and fatty renal cells adherent to casts. Considerable free blood, normal and abnormal. Later the amount of albumin increased to .7 per cent (Esbach) and the urea fell to 9.8 gms. In the sediment there appeared an abundance of highly refractile casts, most of them plastered with renal cells and many with fat drops. A few days before death the casts became more scanty as the edema increased.

At autopsy only "acute degeneration" was found.

TABLE VI.—MARKED URINARY ANOMALIES. ACUTE DEGENERATION (POST MORTEM.)

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	URINE.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	562	Abscess and gangrene of lungs. Fractured skull. Sero-fibrinous pleurisy. Kidney opaque but histo*logically normal.*	None made.	....	....	⅛	... .	Few hyaline and granular casts with blood, fat, cells adherent.	Convulsions. Coma.
2	541	Typhoid fever. Kidneys pale grey but histologically normal.	Typhoid.	....	1021	¼ +	. . ....	Fairly numerous hyaline and granular casts with moderate amount of fat and fatty cells adherent. Free blood.	
3	203	Typhoid fever. Kidneys pale and opaque. Tubules contain much granular material and delicate ring-like bodies.	Typhoid with hemorrhage.	700 c.cm.	1013	0.8⅔	....	Large number of coarse and fine granular casts; few hyaline epithelial casts. Few *blood cells.*	
4	134	Acute cystitis. Pyelitis. Cortical epithelium granular and encroaching on lumen of tubule.	Cancer of prostate. Acute nephritis.	650 c.cm.	1024 to 1015	Slight trace to ⅛.	....	Many hyaline and brown granular casts; few blood and fatty casts.	
5	102	Subacute pleurisy and pericarditis. Renal epithelium swollen, broken and granular. Nuclei poorly stained.	Chronic nephritis.	1000 c.cm.	1021	Large trace.	....	Many hyaline and granular casts; fat cells and blood adherent. Few epithelial, blood and brown granular casts.	
6	51	Otitis media. Broncho-pneumonia. Swelling of the renal epithelium without any other changes.	Otorrhea. Subglossitis. Fracture of the base.	.. ..	1027	¼	....	Numerous hyaline casts with much fat adherent. Few fatty casts.	
7	46	Gangrenous proctitis. Chronic cystitis. Broncho-pneumonia. Marked cloudy swelling of cortical epithelium; that of pyramids much broken up and degenerated.	Enlarged prostate.	1680 c.cm.	1014	⅓	0.95%	Numerous hyaline and granular casts; many with oil globules and fatty cells adherent. Much blood and pus.	Examination by Dr. Wood who comments: "*Some of the* cells suggest morbid growth."
8	37	Phthisis, miliary tuberculosis. Cloudy swelling of epithelium of cortical tubules.	Tuberculous meningitis.	....	1028	¼	....	Many *hyaline*, fine and coarse granular casts, with blood, fat and cells adherent. Free blood.	
9	178	Typhoid fever. Broncho-pneumonia. Kidneys show some cloudy swelling of the epithelium and congestion of the vessels.	Typhoid fever. Hypostatic pneumonia.	....	1023	0.16⅔	....	Many coarse granular casts of small and medium diameter. Some epithelial casts.	
10	735	Chronic tuberculosis. Acute miliary tuberculosis. Acute degeneration of the kidneys.	Pneumococcus bronchitis. Acute nephritis.	Average 1000 c.cm.	1016	¼ to 0.8.	17 grams average.	Very many hyaline and granular casts. Few epithelial, fibrinous, blood and waxy casts. Much fat and fatty cells on casts.	

MARKED URINARY ANOMALIES WITHOUT DISCOVERABLE LESIONS POSTMORTEM.

Twice in the last ten years we have made the diagnosis of acute nephritis and been confronted at autopsy with normal kidneys. In one of these cases, No. 10, Table 7, the patient was thought to be uremic, and not unnaturally, for the patient entered the hospital for edema and vomiting, and was found to have well-marked hypertrophy of the left ventricle, with frequent twitchings of various muscles, in addition to a urinary condition identical with that found in some of the cases of chronic glomerular nephritis (autopsy diagnosis) tabulated in Table 3.

In the eight other cases shown in Table 8, the urinary anomalies are hardly less marked, and the diagnosis of nephritis might have been made had not the clinicians grown cautious as a result of previous disappointments at autopsy, and practically disregarded the microscopic and chemical findings in the urine so long as its physical characteristics were not remarkable and the patient showed no signs of uremia or dropsy.

The table proves that we may have .25 per cent. or more of albumin with great numbers of all varieties of casts without any discoverable lesions postmortem. It makes us doubt how far the same microscopic and chemical changes, when nephritis is found postmortem, are due to the nephritis. They may be due to accompanying functional disturbances whose anatomic basis is still unknown and not to the known anatomic lesions which they happen to accompany.

SENILE DEGENERATION AND ARTERIOSCLEROTIC ATROPHY.

It will be remembered that I have grouped under this heading only cases in which the atrophic lesions were focal, and involved but a very small part of the organ, so that its function should not be markedly impaired.

I shall pass rapidly over the 20 cases of this group. In only three of them was there any mistake of importance in diagnosis. These three were diagnosed as uremia, nephritis and chronic diffuse nephritis, respectively. They mar the otherwise encouraging record of success in the diagnosis of this affection. It will be remembered that it was in the group of cases in which chronic glomerular nephritis was found postmortem that our chief diagnostic successes were made, and it still remains true that we generally recognize this disease when it is present, but we must confess that we occasionally diagnose it when it is not present, as in the three cases of this series. How the mistake could have been avoided in these three cases I do not see. The urine of each of them was scanty, pale, lacking in urea, highly albuminous and full of fatty casts (Nos. 148, 251, 686); the patients were dropsical and suffered from coma and convulsions, apparently of uremic origin.

But although these 20 cases include but three in which there is a discrepancy between clinical and anatomic diagnosis, they illustrate very strikingly the fact that identical anatomic lesions in a series of kidneys postmortem do not mean identical urinary findings during life. With kidneys containing nothing worse than a few small areas of fibroid atrophy we find associated sometimes only the slightest possible trace of albumin, sometimes .1 per cent, sometimes .25 per cent, sometimes no casts on repeated examinations, sometimes a few of the hyaline and granular type, sometimes a large number of almost every known variety. The specific gravity may be high, low or medium. The 24-hour amount was almost always below normal.

FATTY DEGENERATION

Only cases in which the fatty change was extensive have been included in this series. The mild cases have been classed along with the acute degenerations. (See Table 6.)

The data available in these seven cases are only sufficient to demonstrate that there is no single set of urinary findings which correspond with the anatomic conditions of extensive fatty degeneration. In one case there was no albumin; in two the albumin was scanty, and in two there was .25 per cent. Casts were absent in two, scanty in two and abundant in two. Fat on casts was present in but two.

The urine was altogether suppressed in one case and in two others it was reduced to about one-half its normal amount, while in the remaining cases the 24-hour quantity was not measured.

ALBUMINURIA AND CYLINDRURIA.

Although we are ignorant just what conditions make the kidney let albumin pass through into the urine, it is perfectly safe to say that the conditions are other and less stable than those which we describe from the postmortem lesions as one or another variety of nephritis. Some of the cases here mentioned in detail prove that albumin in large amount may be present in the urine

TABLE VII.—MARKED URINARY ABNORMALITIES WITHOUT RENAL LESIONS (POSTMORTEM).

Case No	Autopsy No	Anatomic diagnosis.	Clinical diagnosis.	Urine.					Remarks.
				24 hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	724	[illegible] tion	Acute nephritis. Uremia. Endometritis		1012	¼		Few epithelial and brown granular casts	Delirium, vomiting, diarrhea; coma.
2	798	Pneumococcus meningitis. Kidneys, no lesion worthy of mention	Meningitis		1042	Large trace		Many hyaline and granular casts with cells adherent. Few epithelial and fatty casts.	Sugar—2%.
3	784	Typhoid fever.	Typhoid.		1023	0.1		Many hyaline, fine and coarse granular casts. Few brown granular and epithelial casts.	
4	783	Gastric ulcers. Peritonitis. Bronchopneumonia.	Gastric ulcer.		1011	Trace		Many hyaline, fine, coarse and brown granular casts. Many highly refractile casts. Few epithelial and pus casts.	
5	776	Pneumococcus pneumonia. Pneumococcus septicemia.	Pneumonia		1027	0.1	2.8%	Many hyaline fine and coarse granular casts. Few brown granular [illegible]	
6	612	Cirrhotic liver. Portal stasis	Cirrhotic liver		1020	Very slight trace.	1.7%	Many hy[illegible] casts, o[illegible] cells ad[illegible] [illegible] brown granular casts	
7	575	Atrophic cirrhosis. Jaundice	Cirrhotic liver		1020	Large trace	2.7%	Numerous hyaline and fine granular casts, with many cells and fat drops adherent.	
8	520	Mitral stenosis. General passive congestion	Uncompensated heart disease		1027	¼ to ½	1.9%	Few hyaline and granular casts, with cells adherent	
9	424	Tuberculous pleurisy. Pneumococcus septicemia	None made		1023	¼	2%	Many hyaline, granular and epithelial casts. Few fatty and waxy casts.	General edema, especially of left side. Ascites
10	410	Hydronephrosis. Pneumonia	Acute nephritis	1600 to 1400 c cm	1013 average	⅓	12.9 grams.	Many hyaline casts, most of them with blood, fat and fatty cells adherent. Few coarse granular and fatty casts	Twitchings of various muscles. Hypertrophied left ventricle.

without there being any anatomic lesions demonstrable postmortem by our present methods. Just what the relation between albuminuria and nephritis is, I feel quite unable to say. Either can appear without the other, and in a chronic disease like contracted kidney we often see the albumin appear and disappear when we know that the anatomic lesions are fixed beyond the possibility of parallel changes. Our clinical inferences from the amount or percentage of albumin to the anatomic lesions in the kidney are often far too direct. Doubtless structure and function will prove, when fully known, to be only different aspects of the same fact, but at present our knowledge of structural anomalies is not fundamental enough to run parallel to the variations in functional capacity that manifest themselves in facts like albuminuria and casts.

TABLE VIII.—SENILE ATROPHY.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	URINE.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	1162	Cancer of prostate with diphtheritic cystitis. Kidneys weight—177. Some foci of fibroid atrophy.	Retention of urine. Septic testis.	1000 c.cm. (average).	1015	Large trace.	30 grams (average).	No casts.	Age 86.
2	1089	General arteriosclerosis. Kidneys weight—195. Areas of fibroid atrophy; not extensive enough to call chronic interstitial nephritis.	Arteriosclerosis. Acute gastroenteritis.	500 c.cm.	1014	Slightest possible trace.	....	Numerous hyaline and granular casts, with few oil drops and round cells adherent.	Age 90.
3	1002	Obliteration of inferior vena cava. Cysts of left kidney. Senile atrophy of right (focal).	Obliteration of inferior vena cava. Mitral regurgitation.	1000 c.cm. (average).	1016	Slightest possible trace.	2%	No casts, blood or fat in two examinations.	Age 82.
4	766	Cerebral hemorrhage. Senile atrophy of kidneys. Combined weight—269. Foci of fibroid atrophy microscopic.	Cerebral hemorrhage.	980 c.cm. (average).	1009	¼	¼ %. 6.6 grams.	Many hyaline and fine granular casts.	Age 65.
5	686	Gliomata of temporal and frontal lobes. Senile atrophy of kidneys. Combined weight—201. A few small areas of fibroid atrophy in the cortices.	Uremia.	... .	1022 (Average).	Slight trace to 0.1	1.15% (average).	Many hyaline and granular casts, with fat and fatty cells adherent. Few blood, epithelial and waxy casts. Many compound granule cells.	Age 69. Coma. Convulsions. No paralysis.
6	637	Atrophic cirrhosis. Gastric ulcer. Senile atrophy of kidneys. Combined weight—465 grams. Numerous stellate depressions. Increased consistency. "Histologically not remarkable."	Cirrhosis of liver.	750 c.cm. (average).	1021	Slightest possible trace.	17 grams.	Rare hyaline and granular casts, with round cells on it.	Age 65.
7	627	Pneumonia. Senile degeneration of kidneys. Combined weight--294 grams. Small areas of fibroid atrophy in cortex.	Pneumonia.	....	1022	Very slight trace.	....	Hyaline, fine, coarse granular casts, some with round cells adherent.	Age 49.
8	555	Gangrenous infarct of lung. Cardiac thrombus. Senile degeneration of kidneys. 255 grams combined. No miscroscopic examination.	Herpes zoster. Asthenia.	....	1020	Trace.	....	Few hyaline and granular casts.	Age 74.
9	557	Pneumonia. Mitral endocarditis. Senile atrophy of kidneys. Combined weight—245 grams. Microscopically; a few areas of fibroid atrophy.	Pneumonia.	....	1015	Very slight trace.	....	Fairly numerous hyaline and granular casts, often with small round cells and a small amount of fat adherent.	Age 56.
10	385	Acute cystitis. Fatty degeneration of liver. Senile atrophy of kidneys. Combined weight—184 grams. Microscopically; no general increase of connective tissue.	Alcoholism.	... .	1021	Trace.	....	Many hyaline and fine granular casts, with cells and fat adherent.	Age 50. Coma No fever. Leucocytes 30,000.

Fatigue states not usually *classified as disease* are capable of bringing into the urine a quantity of albumin and casts equaling that found in the majority of cases of anatomical nephritis such as I have tabulated above. Thus, Darling[3] reports .9 per cent of albumin in the urine of a member of a Harvard four-oared crew after a two-mile race, and five other men had from .25 to .5 per cent. under similar conditions, yet the albumin disappeared within a short time, and there is no evidence that any permanent damage was done to the kidneys.

The sediment "contained correspondingly large numbers of hyaline and finely granular casts, many having renal cells and red blood corpuscles adherent. In many of the sediments there was also a considerable number of red blood corpuscles and an excess of leucocytes. The sediment in many cases was exactly that of the first stage of acute nephritis, and if examined without a knowledge of the conditions might easily have caused anxiety."

In view of the facts just mentioned and of those earlier tabulated, it seems probable that the albuminuria and cylindruria associated with many cases of nephritis may not depend directly on the anatomic changes which we describe under the name of nephritis, but on functional derangements of which we know little or nothing, and which may or may not accompany nephritis.

In cancer of the stomach the vomiting so often present may not depend directly on the cancer, but rather on the stasis and fermentation which are present in some, but not in all cases of cancer, and are also found in many non-cancerous diseases. Is it not as rash to predict anatomic nephritis because we find albumin and casts, even in large quantities, as it would be to predict gastric cancer from the presence of emaciation and vomiting? I think it may well be that the inference is no more justifiable in the one case than in the other.

What we directly observe and record in our diagnosis of diseased conditions of the heart, kidney, stomach and brain is disturbed function, but from this to known anatomic alteration—temporary or permanent—the inference is indirect and often very uncertain.

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[3] Darling: Boston Medical and Surgical Journal, Sept. 7, 1899, p. 231.

THE ESTIMATION OF UREA.

In this part of the country a great number of useless urea estimations are made. I suppose the test still preserves some of the dignity and impressiveness which it possessed when it was thought that retained urea was the cause of uremia. On *no* other hypothesis can I account for the reverential care with which we still perform the urea test in cases and under conditions where it can not possibly yield us information of value.

What we measure in measuring urea is not the functional power of the kidneys, but merely their power to take out of the blood a certain portion of the urea there present. It has been abundantly proved by the researches of von Noorden and others that, in chronic nephritis of any type, the kidney may excrete some substances perfectly well, others less well and still others very poorly. The excretory power is distinct and specific for each substance, and when we know, for example, that urea or methylene blue is poorly excreted, we can not immediately infer that the kidney is likewise deficient in the power to excrete other substances.

Yet, since urea is certainly a very important urinary constituent we might still set store by the knowledge of the amount excreted in the urine, if thereby we could measure directly the power of the kidney to excrete this one specific substance. But we are apt to forget that the amount of urea excreted in the urine depends not merely or even primarily on the functional power of the kidney, but also on the amount of nitrogenous food absorbed by the individual, and on the catabolism of the whole body. Absolute mathematical regulation of the diet extending over a period of several days preceding the urea estimation is essential if we are to make any valid inferences from this procedure. If this has been done we have taken one step in the direction of making a urea estimation of value; but it is not merely the amount ingested but the amount absorbed that we need to know, and this depends on so many factors—digestion, exercise, sleep, the amount of water ingested, the presence or absence of fever, vomiting or diarrhea, the presence or absence of cachexia, wasting disease or heart troubles, that without an elaborate study of these factors we can not estimate with any accuracy how much urea we ought to expect this individual, in this 24 hours, to eliminate by the urine, provided his kidneys were sound. Yet unless we know all this we can not tell whether an absolutely low urea excretion really is low for this individual under these conditions.

I desire next to enumerate and explain more in detail the conditions which affect the output of urea and prevent our being able to determine thereby the functional power of the kidney.

(a) *Exercise* breaks up the albumins of the tissue and increases the output of urea. When a patient is put to bed and deprived of all exercise his urea excretion is more or less diminished—the diminution varying a good deal in individual cases according to conditions which we do not understand.

(b) The free *ingestion of water*, or diuresis otherwise produced, increases the amount of urea excreted, and anything that tends to send water out of the body

TABLE IX.—ARTERIOSCLEROTIC RENAL ATROPHY.

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.					Remarks.
				24-hour amount.	Spec. grav.	Albumin, per cent.	Urea.	Sediment.	
1	1192	Prostatic hypertrophy. Chronic cystitis. Mitral and aortic sclerosis. Arter- [illegible] teriosclerosis microscopically.	Stone in bladder. Nephritis.	1100 c.cm. average.	1016 average.	Large trace.	18 grams average.	Rare hyaline cast.	Age 79 years. Combined weight of kidneys, 200 grams.
2	348	Arteriosclerosis. Chronic passive congestion. Microscopic changes as above.	Pulmonary infarct. Arteriosclerosis.	950 c.cm. average.	1016	0.1	....	Numerous hyaline, fine granular, coarse and brown *granular; with cells and* fat adherent.	Age 60 years. Combined weight of kidneys, 276 grams.
3	311	Arteriosclerosis (general). Foci of fibroid atrophy with thickened intima in the arteries. Microscopic changes as above.	Mitral regurgitation.	1500 c.cm. average.	1015 average.	Trace.	25 grams average.	Few hyaline and granular casts. At times no casts.	Age 62 years. Kidneys' weight, 330 grams.
4	307	Same as in No. 3.	Cerebral embolism.	1000 c.cm.	1018	½	2.27%	Many hyaline, fine and coarse granular casts. Some very large and fatty. Some with blood and cells adherent.	Age 60 years. Kidneys' weight, 225 grams.
5	297	Multiple myeloma. Arteriosclerosis. Microscopic changes as above.	Multiple myeloma. Albumin and albumose present.	1030 c.cm. average.	1012 average.	Slight trace.	....	Hyaline, granular and waxy casts. Some with many oil drops adherent.	Age 54 years. Kidneys' weight, 249 grams. Albumose ¼%
6	277	General arteriosclerosis. Thrombus in lateral sinus. Microscopic changes as above.	Cerebral hemorrhage.	....	1011	Large trace.	....	No casts found.	Age 72 years.
7	273	Cancer of pancreas. Syphilis. Arteriosclerosis. Microscopic changes as above.	Cancer of biliary passages.	....	1015	Large trace.	1.5%	Many hyalin[illegible] granular [illegible] large dia[illegible] fat and cells adherent. Few fatty casts.	[illegible] years. Kid[illegible] weight, 270 grams.
8	257	General arteriosclerosis. Microscopic changes as above.	Postoperative dementia.		1018	⅛	....	Few hyaline and coarse granular casts with fat and [illegible]	Age 43 years. Kidneys' weight, 240 grams.
9	251	Arteriosclerosis with mitral disease. One coronary thrombosed. Microscopic changes as above.	Chronic diffuse nephritis. Enlarged heart.	390 c.cm.	1018	⅓	2%	M[illegible] fat; [illegible] und [illegible] ent. [illegible] on casts. Some casts very dense. Casts within casts.	Age 49 years. Kidneys' weight, 360 gram.
10	194	Arteriosclerosis with aortic and mitral disease. Microscopic changes as above.	Myocarditis. Hydrothorax.	1000 c.cm. average.	1020 average.	Slight trace.	....	Many hyaline and granular casts with cells adherent.	Kidneys' weight, 375 grams,

through other channels (vomiting, diarrhea, sweat baths, purgation) diminishes the excretion of urea.

(c) If there is disturbance of *digestion or assimilation,* part of the nitrogen taken in with the food reappears in the feces and is subtracted from the urinary output of urea. Obviously this is a factor, the degree of whose disturbing operation is very difficult to measure.

(d) *The circulation* through the kidney also influences to a considerable extent the output of urea, and if the heart is not doing its work well (as so often happens in nephritis) the urea excretion will thereby be affected more or less—how much we can not estimate.

(e) *Spontaneous nitrogen retention* leading to decreased urea-output is not very rare either in health or in disease, quite independent of any renal disease or of any other measurable influence.

(f) *In nephritis,* as v. Noorden and others have shown, there are periods of good urea excretion alternating at varying intervals with periods when urea is deficient in the urine, so that a great deal depends on the chance coincidence of the time of our examination with one or another of these periods.

In the majority of nephritic cases which I have studied the amount of urea was noticeably low only when the amount of food ingested was small and the amount absorbed still further diminished by the lack of proper exercise or sleep, and the presence of vomiting, sweating and diarrhea, natural or artificial.

In the vast majority of cases we can not spend the time necessary to make a study of the patient's metabolism and of the other factors above mentioned, yet without all this our urea estimations are not worth even the small amount of time which they consume. Supposing that no disturbing factors such as vomiting, sweating or purging are present, suppose that digestion, assimilation, sleep and exercise are normal, and the amount of water ingested is known and allowed for, the least we can do after getting the patient into a condition of nitrogenous equilibrium is to measure the food-nitrogen, the fecal nitrogen and the urea[4] of a certain 24 hours and then calculate whether the urinary nitrogen is sufficient.

The necessity for estimating the fecal nitrogen is due to the fact that, roughly speaking: Food nitrogen minus fecal nitrogen equals urinary nitrogen.

But it may be said that although urea estimations, as ordinarily performed, can give us no very accurate idea of the renal function, they may still be valuable, because we can obtain from them a rough, general estimate of the kidneys' power. This is true, but the same estimate can be made as accurately and far more quickly by noting the specific gravity and the 24-hour quantity of urine. These simple physical measurements are, in my opinion, the best and most accurate as well as the simplest and quickest methods of testing the renal functions that are at the disposal of the clinician to-day.

The quantitative estimation of the other urinary solids—uric acid, phosphates, chlorids and sulphates—are, in my opinion, equally useless to the clinician. We may get some information from such estimations, but none that is worth the time they consume.

TABLE X.—FATTY DEGENERATION OF KIDNEYS (EXTENSIVE).

Case No.	Autopsy No.	Anatomic diagnosis.	Clinical diagnosis.	Urine.					Remarks.
				24-hour amount.	Specific gravity.	Albumin. per cent.	Urea, per cent.	Sediment.	
1	1145	Thymic asthma. Thymic hyperplasia. Fatty degeneration of liver and kidneys (marked). Otherwise normal.	Intestinal toxemia, morphin poisoning.	....	....	Slight trace.	.75	Few hyaline casts. Many fine granular casts; many with round cells adherent.	Age 18 months. Kidneys' weight, 76 grams.
2	828	Parturition, Anemia. Fatty degeneration of kidneys. No other lesion.	Chronic nephritis. Anemia.	600 c.cm. average.	1013 average.	¼	1.4	Occasional hyaline and fine granular casts, with fat and renal cells adherent.	Age 34 years. Kidneys' weight, 294 grams. Headache. Nose bleeds. Vomiting. Hands and face swollen. Normal labor. Red cells, 800,000.
3	606	Pneumonia. Fatty kidneys and liver. No other lesion.	Pneumonia. Alcoholism.	....	1012	0.16⅔	....	Many hyaline and granular casts, often with blood, round cells or fat adherent. Few blood casts.	Age 37 years. Kidneys' weight, 395 grams.
4	269	Arsenical poisoning. Fatty liver and kidneys.	Arsenical poisoning. Anuria-nephritis.	No urine passed.	....	....	....	....	Age 27 years. Kidneys' weight, 246 grams.
5	235	Fibrino-purulent pleurisy; pericarditis and peritonitis. Fatty liver and kidneys.	Pneumonia.	....	....	0	....	No casts or fat.	Age 4 years. Kidneys' weight, 145 grams.
6	206	Extensive fatty metamorphosis of liver and kidneys. Acute endocarditis.	None made.	....	1015	Large trace.	....	No casts.	Adult. Kidneys' weight, 320 grams.
7	177	Cerebral hemorrhage. Cirrhotic liver. Fatty kidneys (moderate).	Cerebral hemorrhage.	730 c.cm.	1020	¼+	....	Hyaline and fine granular casts, some with round cells adherent.	Adult. Kidneys' weight, 419 grams.

CASTS.

With regard to the examination of urine for casts the following points seem to me of importance:

1. Hyaline and granular casts in small numbers may be demonstrated in the urine of healthy adults, provided the centrifugal machine is used and a considerable amount of urine employed. The use of the centrifugal machine has not only brought out the fact that casts are not infrequently present in normal urine, but has greatly increased the number to be demonstrated in pathologic urine, so that it is difficult to make any comparisons between the modern urinary examinations, many of which are made with centrifugalized urine, and older examinations in which the sediment was simply allowed to settle.

2. Sufficient attention, I think, has never been paid to the studies of F. C. Shattuck on the urine of healthy persons over 50 years of age, in which he showed that more than two-thirds of all such persons pass urine containing a slight trace of albumin with hyaline and granular casts.

3. In the great majority of all written reports of

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[4] Assuming the urea to represent from 83 to 93 per cent. of the total urinary nitrogen.

urinary examinations mention is made of renal cells, either free or on casts. This phrase seems to me unjustifiable. One sees in the urine small round or oval cells, some mononucle[illegible] free or attached to casts. The [illegible] are apt to call renal cells, but we have no reason to do so. They may very well be lymphocytes or cells of some other variety. The use of the words renal cell gives an appearance of precision to our urinary diagnosis which is far in excess of the truth. We should report small, round cells, mononuclear, or polynuclear; this is all that we know.

WHAT METHODS OF EXAMINING THE URINE ARE MOST VALUABLE IN THE DIAGNOSIS OF NEPHRITIS?

In my opinion the microscopic and chemical examinations of the urine are of much less significance than the physical. Microscopic and chemical changes are relevant rather to temporary alterations of function than to alteration in anatomic structure. When we are concerned chiefly with the question: Has this patient a nephritis or not? what we need most to know is simply how much urine does he pass, by day and by night, and what is the weight of that urine? These facts, together with the presence or absence of dropsy, retinitis, cardiac hypertrophy and uremic manifestations, constitute nearly all the evidence at our disposal. The presence or absence of albumin and casts, and the deficient excretion of some or all of the urinary solids are data of relatively slight and vague significance in the diagnosis of nephritis at the present time.

The increase in the relative amount of night urine—nocturnal polyuria—is, in my experience, one of the most reliable manifestations of a chronic nephritis, especially in its earlier and middle stages.

SUPPLEMENTARY METHODS FOR THE EXAMINATION OF THE RENAL FUNCTION.

1. The use of methylene blue. 2. The use of phloridzin. 3. Cryoscopy.

The Methylene Blue Test.—In some diseases of the kidney methylene blue (injected subcutaneously or introduced by mouth) is eliminated more slowly and irregularly than in health, while in other forms of nephritis we have increased renal permeability, and the blue is excreted more rapidly than normal. In view of these facts, various French observers have tried to use the rate of elimination of the pigment as a test of renal function. The test is not of clinical value, however, because we can not judge of the permeability of the kidney for other solids from its permeability for a single substance like methylene blue. The rate of absorption from the subcutaneous tissues or from the gastrointestinal tract is another factor whose variations we can not measure, particularly in cases associated with edema. The pain produced by the subcutaneous injection of the drug is not to be disregarded, as I have found to my cost in experimenting on myself.

On the whole this method has little if any place in clinical diagnosis.

The Phloridzin Test.—The glucocide phloridzin, when injected subcutaneously (5 milligrams in watery solution), produces glycosuria by direct action on the renal epithelium. Assuming that the amount of sugar drawn from the blood under these conditions by the kidney is in proportion to the number of functionally active cells, we may attempt to estimate the functional power of the kidney by testing the amount of sugar excreted in the urine after a standard dose of phloridzin and the rate of its excretion.

This test seems to be of some value in the diagnosis of the functional power of one kidney (stone, tuberculosis, etc.) when we collect the urine from each kidney separately and have the sound kidney as a control, but in nephritis affecting both kidneys, as is almost always the case, the test is of little value, because the normal quantity of sugar and the rate of excretion following the injection of a standard dose of phloridzin vary within wide limits. Only if the sugar fails to appear or appears only in traces can we be sure that serious renal disease is present. In such cases the diagnosis can usually be made by the ordinary methods.

Cryoscopy.—Cryoscopy, or the determination of the freezing point of blood and urine, was introduced into medicine by Koranyi in 1898, and has been extensively taken up by the French, who have made it the basis of much speculation. The method depends on physicochemical generalization usually associated with the name of Raoult. According to this rule, the freezing point of any liquid is lowered below that of water in proportion to the number of molecules dissolved in it, no matter what the weight or constitution of these molecules may be. From the freezing point of a given urine we are thus supposedly enabled to judge of the number of molecules excreted, and so of the functional activity of the kidney. The freezing test itself is not a lengthy or difficult process, but it is made considerably more tedious by the necessity of a quantitative estimation of the amount of chlorin in the urine examined. For we are concerned to know not the total number of molecules excreted, but only those that represent metabolism. Now, sodium chlorid passes unchanged into the urine, and as the amount of it affects the freezing point notably we need to estimate this amount and to make allowance for its effect on the freezing point of the urine. By subtracting the estimated lowering of the freezing point, due to the chlorin molecules, we get a figure representing the amount of lowering due to those substances in which we are primarily interested, namely, those concerned with metabolism. Of course, the weight of the individual and the 24-hour quantity of the urine must be also considered.

But before we can make any clinical deduction from variations in the freezing point thus estimated, we must take account, just as in urea estimations, of the amount and kind of nourishment which the body absorbs, and since metabolism depends not simply on what is eaten, but on what is absorbed, and so on the condition modifying absorption, we can not draw any deductions of clinical importance without knowledge of the metabolism in the individual case.

Further than this, there are many circumstances which may interfere with the accuracy of the test. Allowance has to be made for the influence of exercise and sleep, of vomiting, sweating or diarrhea, and of pregnancy, while the effects of a milk diet or of the changes taking place at the end of an acute infective disease may lower the freezing point in a way closely simulating the results of nephritis.

According to Koranyi, the chief advocate of cryoscopy, the test is unreliable when there is a retention of water (dropsy or latent dropsy), and when there is marked anemia or cachexia.

H. Strauss, in a lucid monograph,[6] has well brought out the multiplicity of conditions that have to be taken account of before we can draw any diagnostic deductions from the results of the test—even when the freezing point of the blood (for which we need from 15 to 20 c.cm. of blood) is simultaneously determined. Without the latter it is still more difficult to draw true conclusions from the results of the test. Even uremic cases may show no considerable modification of the freezing point of the blood or of the urine, and very marked changes may occur without the presence of any kidney disease at all.

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[6] Bedeutung der Kryoscopie, Berlin, 1904.

Including the estimation of chlorin, the process is itself not a quick one. And, if we bear in mind, as we ought to do, the influence of diet, exercise, sleep, and of such accidents as vomiting and diarrhea, we shall have to confess the method is not at present clinically available in many cases.

Many of the above difficulties do not apply to the use of cryoscopy to determine, in surgical affections of one kidney, the functional power of the other before deciding about operation. It is in this field that cryoscopy has found most enthusiastic support and received its widest application. If we catheterize the ureters and determine the freezing point and chlorin in each of the specimens so obtained we are testing urines secreted under conditions which are precisely the same up to the point at which the kidney itself begins to functionate. In such cases, whatever the metabolism of the individual, however his blood may be influenced by sweating or vomiting, all influences will be brought to bear equally on both kidneys, and any differences found to exist between two specimens of urine flowing from the ureteral catheters must depend on differences in the kidneys themselves and not on any other condition.

SUMMARY AND CONCLUSIONS.

Although the number of cases which I have studied is not large, it is, I think, sufficient to warrant the following conclusions:

1. There are many cases of acute glomerular nephritis which can not be recognized by any of the methods of examination known to us.

2. In some cases of subacute and chronic glomerular nephritis, our diagnostic resources are likewise at fault, but in the great majority of cases here studied, the condition of the urine taken in connection with other features of the clinical picture, enabled us to anticipate the autopsy findings. Our success in the diagnosis of chronic glomerular nephritis as almost as constant as our failure in the acute cases.

3. When we face the group of chronic interstitial cases, our diagnostic resources appear to be neither as sufficient as in chronic glomerular nephritis, nor as inadequate as they were shown to be in the acute cases.

In about one-third of the cases the diagnosis was correctly made before death.

4. Among other conditions mistaken for nephritis, owing to the implicit reliance in the urinary findings, we find that the senile and arteriosclerotic degenerations are not infrequently the cause of mistaken diagnoses of chronic nephritis, while in conditions involving passive congestion or acute degeneration of the kidney, the urine occasionally simulates that of acute nephritis. Even in cases where no lesions are to be found at autopsy, the urine is occasionally highly albuminous and full of casts.

5. In our ordinary urinary examinations, common errors are: (*a*) The attempt to estimate urea without any accurate knowledge of the patient's metabolism. (*b*) The statement that renal cells are present when all that we know is that we have seen small mononuclear cells, perhaps belonging to the renal tubules, perhaps not.

6. Cryoscopy and other attempts to test more directly the renal permeability are not as yet capable of supplementing in clinical work the older methods of examination in the diagnosis of nephritis.

The vast majority of estimations of urinary solids, including urea, are in my opinion a waste of time, since they are not, and in most cases can not be made, part of a general metabolism experiment.

The attempt to estimate the anatomic condition of the kidney by the measurement of albumin and the search for casts is fallacious in the extreme.

The most reliable data about the urine are those most simply and quickly obtained, the twenty-four hour quantity, the specific gravity and the color.

IDIOPATHIC EPILEPSY.

OBSERVATIONS ON ITS TREATMENT.*

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This paper is not intended to be an exhaustive treatise on the therapeutics of this disease. The ideal treatment for epilepsy is that of the Craig colony at Sonyea, and our best efforts should be given to establishing such colonies at the earliest possible moment in every state in which they do not already exist. After we thus make provision for many of these unfortunate people, however, there will still remain a large number who will require treatment at their own homes or in our offices.

In considering the therapeutics of epilepsy in general, it is well to bear in mind the fact that there are spontaneous cures, and one of these cases was brought to my attention for the first time about twenty years ago. I was called to see a man of 60 in convulsions. He had had an attack of grip, with high temperature and suppression of urine; the convulsions were soon found to be uremic. On inquiring into his history, I ascertained that he had been an epileptic from early youth until the age of about 20, when he left his home in London for America, having been assured by his physician that an ocean voyage would cure him. He landed in New York, and a short time afterward came to Chicago, where he was successful in business, and from the date of his leaving the port in England until the time of his attack of grip, that is, during a period of about forty years, he had had no manifestations whatever of the disease. In this case the ocean voyage is credited with having effected a cure. The impress of his neurosis was manifest in two of his children, of whom one died insane and another of delirium tremens after years of inebriety.

I have seen other cases in which there was the same spontaneous arrest of the disease. Such cases give reputation to many means of cure, and many things that can not possibly have had anything to do with the results are credited with being cures for epilepsy. There is no more difficult problem in medicine than to separate the *post hoc* from the *propter hoc*. Another difficulty that surrounds the therapeutics of the case is the fact that epilepsy is a symptom, not a disease. It may be the only symptom manifest, as in idiopathic or essential epilepsy, or it may be one of many symptoms, as in an organic brain disease. Another difficulty in the way of a scientific therapy is the want of a positive pathology, but in this matter we are making headway. The theory of that gifted student of epilepsy—Echeverria—that the medulla oblongata is the only seat of epilepsy, I think we all have abandoned, as we have many other theories, and that we are now of one mind that the cerebral cortex is the seat of the disease, and that hyperplasia of the neuroglia, with the destruction of neurons, especially of those that originate in the second cortical layer, sooner or later is present, and that the whole is due to some toxic element not yet discovered. When this has been discovered, then and only then can we discard empiricism in the treatment of this disease.

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* Read before the American Association for the Care and Treatment of Epilepsy, Boston, 1904.

PREVENTION.

I do not think sufficient attention is given to prevention in those patients who have an hereditary predisposition. These neurotic children have convulsions in infancy, and but little attention is paid to them. A physician may be called at the time, but the convulsion is over, and the case is dismissed from further attention. Such cases demand his most earnest efforts to discover the cause and to remove it, and then to see that the child receives the kind of education and medication that will insure a vigorous physical development and a well-regulated mentality. Home training is not always the best for such a child. for the neurotic condition is an inheritance from mother or father, and this fact may create an environment by no means conducive to the end desired.

Some cases of epilepsy are traumatic and in some the result follows because surgeons do not resort to exploratory operations early, with a view of preventing serious consequences, but delay operation until after convulsions have occurred. It is impossible to estimate the damage done to the brain by trauma. It frequently happens that there is no due proportion between the injury and the magnitude of the mischief the cranium has sustained; with the present modern surgical methods there is no possible danger that can result from an exploration, and it is often demanded, I am sure, in these neurotic subjects.

Before laying the foundations for therapy, every case demands a most thorough investigation. No part of the body should be overlooked in the examination. The blood, the urine, the feces, every possible source of reflex irritation in eyes, nose, mouth, vagina, uterus, penis, rectum, should be ascertained, and often surprisingly valuable information is thus obtained.

The prevention of individual convulsions is a matter of great importance, and the epileptic who has an aura is fortunate. for then there is often the opportunity of arresting impending attacks. The seizures after a time become a habit of the body. The cause may be removed, and the habit may continue, or a minimum of toxicity may become sufficient to discharge the cortical cells. and therefore every attack prevented is a step toward cure by breaking up a bad habit. The pearls of nitrite of amyl of proper size should be carried by every epileptic who has an aura. and at the proper moment they should be used.

These attacks can sometimes be averted by other means. A patient under my care had an aura that began in his right hand. He carried around his wrist a slip noose of silk thread. and when he felt the oncoming of the aura, he quickly tightened it. and if he did so promptly he could stop the progress of the attacks. He eventually obtained relief. and I am of the opinion that his perseverance in the breaking up of the sequence had as much to do with it as did the internal medication he received.

In marking out a line of treatment, it must be borne in mind that in the pathogenesis of epilepsy there is an autointoxication, an increased irritability of the nervous system, a deficiency of vasomotor tonus, and of circulatory capacity, and, lastly, a cerebral sclerosis, and in the plan of treatment each must be considered in due proportion, even though it is possible that the first factor is the foundation of the other three. The autointoxication, in the majority of cases, has its origin in the gastrointestinal tract, and to minimize this there must first be a careful regulation of diet. For this purpose no special and universally applicable diet table is either necessary or desirable, as the digestive capacity and necessities of each patient must be determined. The exclusion of meat, which is advocated by some, is a serious error. The majority of these patients are gormandizers; they eat voraciously, and masticate imperfectly; these conditions must be corrected, they must be taught abstemiousness, and slow and thorough mastication.

I was consulted some years ago by a physician engaged in a large country practice who developed epilepsy, and whose treatment on ordinary lines had been a failure. On investigating his case, I found that after his long rides at night it was his custom to eat a very hearty luncheon, often of very indigestible food, and the convulsions invariably occurred at night. Supposing this had much to do with their manifestation, I put him on a diet of milk and crackers exclusively, continued the bromid treatment he was then taking, and the convulsions, from having been two or three a week, rapidly ceased, and in six months he thought himself cured; he again began his habit of midnight luncheons, and the convulsive seizures recurred. On returning to his abstemious diet they again ceased, and for many years, under a properly regulated diet, he has been free from these attacks.

The condition of the stomach, especially the want of muscular tone, with more or less dilatation, is sometimes at the foundation of this toxicity; and then gastric lavage is indispensable. Insufficient intestinal elimination is a very common condition; so much so do I regard it that even when patients come to me, telling me that they have a daily habit of evacuation which they regard as ample, unless there is some contraindication, I order them a compound cathartic pill (U. S. P.), at least once a week, and frequently direct colonic flushing with normal saline solution. These measures of themselves are often inadequate, and intestinal antiseptics must be added to the treatment. Salol has given me the best results, and I usually combine it with the extract of phytolacca. The two drugs are placed in capsules and given before meals. Phytolacca decandra is a drug not sufficiently appreciated by the profession at large. In that complex error in metabolism that we recognize as rheumatism, it is of undoubted value, and in the errors of metabolism with which we are now contending I know it is sometimes useful.

The increased irritability of the nervous system is best combated by the bromids. the sodium bromid being less depressing to the circulation and less disturbing to the digestion, is probably the best. I have rarely seen any advantage from the mixture of several bromids, although Brown-Séquard's formula is sometimes very useful; it contains the potassium and ammonium bromids. While the bromids are the most useful of all remedies in combating the irritability of the nervous system, yet we all know that great damage has been done by their excessive use. Epileptic insanity is vastly more frequent to-day than it was before the introduction of the bromids in the treatment of this disease, but it is their excessive use that produces this result. Sixty grains a day is a quantity that should seldom be exceeded except for a special reason, and for a short time only. In nocturnal epilepsy a full dose may be given at bedtime, but in the great majority of cases the proper dose should be given three times a day, after eating.

The disagreeable bromid eructation is much diminished by the addition to the mixture of an alkali. In the Brown-Séquard formula, previously mentioned, the alkali is the carbonate of potassium. When patients can afford it, the drug can be taken in an alkaline water, such as Vichy, which is the ideal water for this purpose; the drug should be given in a large quantity of water, and always after meals. The constitutional effect of the bromids is increased by eliminating the chlorid of sodium as much as possible from the dietary. If the 60 grains of bromid a day do not arrest the paroxysms, then I add to the treatment the fluid extract of solanum carolinense, in one-half to two dram doses, in the bromid mixture. In some cases in which the bromids disagree, this drug alone will control the seizures. Cases that resist this combination will sometimes yield if acetanilid is added to the treatment; this may be placed in the capsule with the salol and phytolacca before meals. Some cases of nocturnal epilepsy that will not yield to this method of treatment are benefited by moderate doses of chloral or chloralamid at bedtime.

The circulatory and vasomotor defect, so manifest in many cases, often can be improved by the use of the fluid extract of adonis vernalis, and this can be added to the mixture already mentioned of bromids and solanum. This drug—adonis vernalis—has all the properties of digitalis without its untoward effects; it does not disturb the stomach, it has no cumulative effect, and it has some sedative influence on the nervous system. It also has marked diuretic properties, and thereby relieves the system of some of its accumulated toxins.

Strychnia is also a valuable remedy in meeting this indication, but it requires to be given in larger doses than are usual to secure the best results. In a case in which the bromids had been given in very large doses, so that the patient—a young, pale, anemic subject—showed positive evidences of bromism, face and back being covered with acne, and mental stupor very manifest, the attacks continued unabated. On the withdrawal of the bromids and the administration of the sulphate of strychnia in gradually increasing doses, until the one-twelfth of a grain was taken once in eight hours, the attacks, which had been daily, gradually ceased; then the dose was gradually diminished. Some strychnia, however, was continued for five years, and now, after a period of eighteen years, there has been no recurrence of the disease.

Cerebral sclerosis is an indication for the use of alteratives. The iodids diminish the rapidity of its development and increase the activity of the bromids, and the iodids, as Brown-Séquard has taught us, can well be added *in small* doses to the bromid formula already mentioned. Another valuable drug in the sclerotic process in brain, liver and kidneys, is the chlorids of gold and sodium rubbed up dry in a capsule with pulverized resin guaiac; this can be given with advantage, alternating with the capsule of salol and phytolacca already mentioned. This gold salt is not only antagonistic to the sclerotic process, but it is a mild cerebral stimulant; and the guaiac, like phytolacca, in some way corrects errors of metabolism. The great importance of a suitable occupation, of a reasonable amount of rest and of exercise, and a careful attention to hygiene must not be overlooked in the therapy of these cases.

Whatever plan of treatment may be determined on, and the four indications that I have specified may be met in different ways by each of us, the treatment, to be effective, must be continued for a space of at least five years. Much of the therapeutic confusion that prevails in this disease results from too early reporting of cases as cures; a surgeon operates to-day, the patient having frequent convulsions; no convulsions occur for a month or two; the case is reported as a cure from some surgical operation, and the same is true of the various lines of drug treatment. No epileptic can be regarded as cured until there has been at least five years' intermission in the epileptic manifestations.

Special Article.

IMMUNITY.

CHAPTER IX.

THE "STRUCTURE" OF TOXINS AND ANTITOXINS AND THE NATURE OF THE TOXIN-ANTITOXIN REACTION.

Biologic Analysis.

Since it has not been possible to obtain the microbic poisons in a pure form, ordinary chemical analysis can give no indication of the composition of the toxin molecule. We have practically no means of studying the nature of toxin except through the biologic experiment, i. e., its effect on animals and on animal cells.

Neutralization of Toxin by Antitoxin.

Investigations have shown that when toxin and antitoxin are mixed in suitable proportions in a reagent glass, a union occurs between the two; a new, non-toxic substance is formed. The mixture contains neither demonstrable toxin nor antitoxin: that is to say, when the mixture is injected into susceptible animals they suffer no intoxication (disappearance of toxin), or if some fresh toxin is added to the neutral mixture none of the fresh toxin is neutralized (disappearance of antitoxin). That a loose chemical union may occur between toxin and antitoxin has been demonstrated in another way, in relation to pyocyaneus toxin and snake venom. Toxins are usually destroyed at lower temperatures than their antitoxins, but in the two instances cited the antitoxins are destroyed at the lower temperature. It was found that when neutral mixtures of pyocyaneus toxin (Wassermann) or of venom (Calmette) with their antitoxins were heated to the proper temperature the solutions again became toxic. This indicates that in the toxin-antitoxin reaction neither is destroyed, but that union or binding occurs; a union which, at least in these instances, may be dissociated by simple means.

Chemical Nature of the Reaction.

In further support of the view that the union is chemical in nature are the facts that: 1, neutralization takes place according to the law of multiple proportions, i. e., ten times a given amount of antitoxin will neutralize exactly a proportionate amount of toxin; 2, neutralization is more rapid at warm than at cold temperatures; and 3, more rapid in concentrated than in dilute solutions. These are some well-known laws of chemical reactions.

"Emil Fischer has shown that in the ferments, definite

Ferments.

atom-groups of special configuration are present which above all else are requisite for the whole phenomenon (of fermentation). Only such substances as possess a group to which the ferment group corresponds, as lock to key, are subject to the action of a particular ferment." This applies to the action of a particular ferment on only one kind of substance.

Haptophores.

Having this conception in mind, Ehrlich assumes that union occurs between toxin and antitoxin through a special atom group which the toxin molecule possesses, and which fits into, or corresponds specifically to, another atom group in the antitoxin molecule. These are spoken of as the binding or haptophorous groups (haptophores) of the molecules. The haptophorous group of the toxin is highly specific since a toxin can be neutralized only by its own antitoxin, and naturally the haptophorous group must be equally specific.

Toxophore.

The toxic function is supposed to reside in a particular chemical group of the toxin molecule, and this group has been called by Ehrlich the toxophore, or zymotoxic, or zymorphous group, the last two terms having reference to a supposed ferment-like action of the toxin. There is considerable experimental evidence to prove that the toxin molecule does contain such a toxophore atom complex, the following being the essential observation: When a toxin, as that of diphtheria, is first prepared, its lethal dose for guinea-pigs is determined, and also the amount of antitoxin which is required to exactly neutralize this dose.

Toxoids.

In the course of subsequent months, experiments show that the virulence of the toxin has decreased. One might suppose in view of this fact that the amount of antitoxin required for neutralization of the toxin contained in the original fatal dose would be correspondingly less; but, on the contrary, exactly the same amount is required for complete neutralization as when the toxin has its original strength. The toxin, therefore, has retained its original binding power for antitoxin, although it has lost a large share of its toxicity; that is to say, the haptophore group of each toxin molecule remains intact, while the loss of toxicity may be referred to the alteration or disappearance of a portion of the toxophore groups. Toxins which have undergone this change are called toxoids.

Immunization with Toxoids.

That the non-toxic toxin, or toxoid, still possesses the haptophore group is also shown by the fact that it may be used for the production of antitoxin. Since antitoxin can be produced only through the toxoid uniting with the cell it follows that the toxoid retains its haptophore.

A toxin entirely free from toxoids has never been observed, since even during the few days required for its preparation a certain amount of toxoid is formed.

Partial Saturation Method of Study.

Much additional information concerning the nature of toxin has been gained by experimenting with mixtures of toxin and antitoxin, in which the two are present in varying proportions. This is the "partial saturation" method of Ehrlich. Through a vast number of experiments Ehrlich obtained information which permitted him to estimate that 200 "binding units" are represented in the amount of diphtheria toxin (hypothetically pure) which is exactly neutralized by one antitoxin unit. If the entire amount of antitoxin, i. e., 200/200, is added to the amount of toxin in question, complete neutralization of the latter, of course, occurs.

The Toxin Spectrum.

In case the toxin is entirely pure, 199/200 of the antitoxin unit would destroy all but 1/200 of the initial toxicity; and 150/200, or 100/200, or 75/200, etc., of the antitoxin when added would permit corresponding degrees of toxicity to be demonstrated through animal inoculations. It was found, however, that neutralization according to this simple scale did not take place. The results were complicated, and Ehrlich has found it convenient to express them graphically in the form of the "toxin spectrum" (Figs. 1, 2, 3 and 4). For example, let 199/200 of the antitoxin unit be added to the proper amount of the toxin, 198/200 to another similar amount, 197/200 to another, etc., down to 150/200. In the last mixture, 50 out of the 200 binding units which the toxin possesses are free, and these 50, rather than some other 50, are free because they have less affinity for the antitoxin than the 150 units which were bound. It has been found that those units which first become free are much less toxic than a corresponding amount of the original toxin.

Epitoxoids.

It was thought that they might have lost their toxophore groups, i. e., that they were toxoids; and because of their weak affinity for antitoxin they were called epitoxoids. It was found, however, that they possessed a rather constant though low degree of toxicity and that the toxic action was characteristic. Injection was followed by some local œdema,[1] then by a long incubation period, and finally by cachexia and paralysis. On account of this characteristic toxic action and the long incubation period, Ehrlich has concluded that the so-called epitoxoid is in reality a separate toxin secreted by the diphtheria bacillus.

Toxon.

This he now designates as toxon[1] in order to distinguish it from that other constituent of diphtheria bouillon, the toxin, which causes the acute phenomena of diphtheria.

Let one now add still smaller amounts of the antitoxin unit to the 200 binding units of the toxin. When 149/200 are added it is found that a certain amount of true toxin remains free, and moreover is free in direct proportion to the amount of antitoxin withheld. Consequently when but 50/200 antitoxin unit is added the amount of free toxin corresponds to 100 binding units. If true toxin only remained a continuation of the experiment would show toxin equals 150. It could then be said that the constitution of this toxin is: toxin 150 and toxon 50. However, it may be found that as 49/200, 48/200, etc., to 0/200 antitoxin unit are added, no increase of free toxin is found, although the antitoxin added has been bound.

Protoxoids.

Therefore, the 50 toxin binding units which have the greatest affinity for antitoxin are non-toxic; i. e., they are toxoids, and since they have the maximum affinity for antitoxin they are called protoxoids.

Syntoxoids.

It has been assumed also that a toxoid may exist which has an affinity for antitoxin exactly equaling that which toxin possesses; this, as yet purely hypothetical constituent, bears the name of syntoxoid.

The above appears in literature as an example of the constitution of a toxin (diphtheria). Figure 1 is a graphic representation of the toxin just described. Probably no two toxins have the same constitution. The toxon zone, for example, could well be much larger in the bouillon of one diphtheria culture than in another.

Refinements in experimentation show that even the true toxin is not uniform in its virulence and its affinity for antitoxin.

Proto-, Deutero- and Tritotoxins.

Accordingly a prototoxin, a deuterotoxin and a tritotoxin may be recognized by this same partial saturation method. (See Fig. 2). For example, it may be found that when a portion of the antitoxin unit, between the limits of 149/200 and 125/200, is withheld, a toxin is left free which is less virulent than that remaining free between the limits of 124/200 and 100/200; and from this point on the new unbound toxin may be still more virulent. The first would be tritotoxin, the second deuterotoxin and the third prototoxin.

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[1] The existence or non-existence of toxons has excited a great deal of discussion among investigators. The great Swedish chemist, Arrhenius, has recently given much attention to toxins and is applying the principles of physical chemistry to the study of toxins and antitoxins. It is a well-known fact that some chemical substances, when in solution, have the power of breaking up into their constituent parts; thus sodium chlorid breaks up in part into sodium and chlorin, as sodium or chlorin ions or electrolytes. The dissociated sodium and chlorin may then enter into combination with any other suitable substance which may be present. Arrhenius holds that this is the case with the toxin-antitoxin molecule, that it may to a certain extent again break up into separate toxin and antitoxin. He believes that this dissociated toxin is the substance which Ehrlich has been calling toxon. Madsen, who formerly had done much work with toxons, has now joined with Arrhenius in support of the dissociation theory. In spite of the reasonableness of this theory Ehrlich and his followers continue to uphold the toxon as an independent toxic substance, and have published additional experiments to support their position.

A "spectrum" having been worked out for a toxin when fresh, an examination made some time later, a year for example, may show many changes. The prototoxin zone and portions of the deutero- or tritotoxin may also have disappeared because of toxoid formation. These changes have led to the recognition of an alpha and a beta modification of the toxin portions. The alpha modifications of all three toxins readily become toxoids. Only the beta modification of the deuterotoxin remains constant. The toxon portion also remains relatively intact (Figs. 2, 3 and 4).

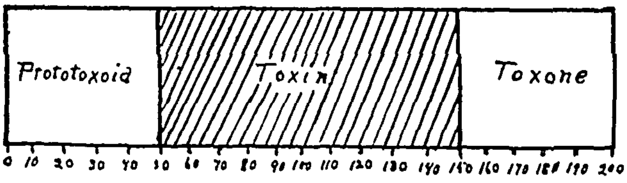

Figure 1.

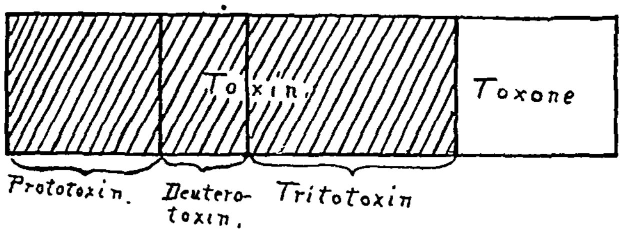

Figure 2.

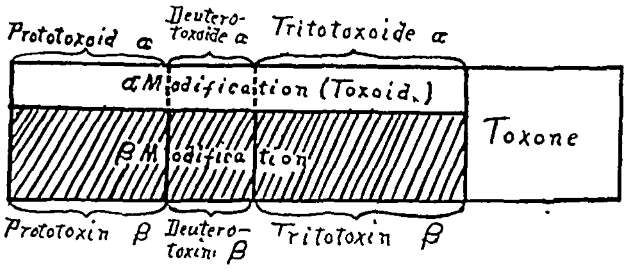

Figure 3.

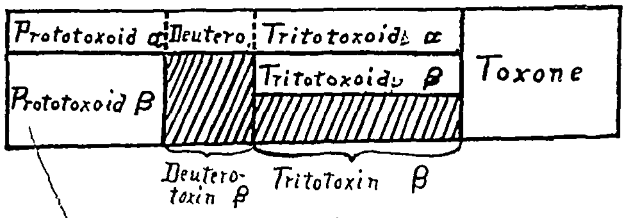

Figure 4.

Figures 1, 2, 3 and 4 are taken from Aschoff's "Ehrlich's Seitenkettentheorie, etc.," Ztschr. f. Allgem. Physiol., vol. i, 1902. Figure 1 is a toxin spectrum worked out by Madsen. Figures 2, 3 and 4 are spectra representing the changes in qualitative and quantitative structure which a toxin may undergo with age, as described in preceding paragraphs.

Summary.

To summarize Ehrlich's views as to the nature of diphtheria toxin: The diphtheria bacillus secretes two toxins, one of which, the toxin, causes the acute phenomena of diphtheria intoxication, while the other, the toxon, causes cachexia and paralysis after a rather long period of incubation. The non-toxic toxin, or toxoid, appears as the result of the degeneration of the toxophore group of the toxin, the haptophore group remaining intact. The toxin may be separated into three divisions, which vary in their affinity for antitoxin—prototoxin, deuterotoxin and tritotoxin. On the same basis there are three toxoids—protoxoid, syntoxoid and epitoxoid (the toxon)—the first having the greatest affinity for antitoxin, while the epitoxoid has the least. The toxins are divided into an alpha and a beta portion, depending on the ease with which they are changed into toxoids. All of these substances unite with tissue cells and with antitoxin through the agency of a haptophore group, while the toxicity depends on the presence of a toxophore group in the toxin or toxon molecule.

This very complicated method of investigation was also undertaken by Madsen in the study of tetanus toxin, for which a somewhat similar toxin "spectrum" was constructed.

Such spectra have not been worked out in detail for some of the vegetable toxins, as ricin and abrin, but it is known that they form toxoids.

Snake venom apparently differs from the bacterial toxins in structure; this will be a subject for later consideration.

The Formation of Antitoxin.

The idea was originaly advanced that antitoxin was transformed toxin, a change in the latter having been effected through some action of the tissues. In that case, the amount of antitoxin produced should be exactly equivalent to the amount of toxin injected. This, however, was found not to be the case. It has been stated that a single injection of tetanus toxin in selected cases may yield 100,000 times more antitoxin than is necessary to neutralize the toxin injected. Another interesting experiment is on record which also shows the fallacy of the view just mentioned. An animal whose serum contained a high value of antitoxin was bled repeatedly until an amount of blood was drawn which equaled the total quantity normally present in the animal's body. Yet the amount of antitoxin in the new formed blood was practically equal to that which was present before the experiment.

Metchnikoff, to explain this "overproduction" of antitoxin, has suggested that the toxin molecules may be taken up by phagocytic cells and broken up into an indefinite number of smaller molecules, each of which then is altered in some obscure manner so as to constitute an antitoxin molecule.

Ehrlich "Side-Chain" Theory.

The views of Ehrlich have found wide acceptance, and have provided a valuable working hypothesis for many investigations. A consideration of this subject introduces one at once to the now famous side-chain theory of immunity of Ehrlich. It may be considered briefly at this point, insofar as it involves the origin and nature of antitoxin. Ehrlich considers it fundamental, in regard to the metabolic activity of cells, to assume that the cell constituents must enter into chemical combination with food substances in order that the latter may be made available for the use of the cell. Substances which thus unite with a cell are affected variously by the activities of the cell; some are split up into simpler substances perhaps by a ferment-like activity, the products being used for the upbuilding of the cell, or in some instances excreted for the use of other cells. Accordingly, it seemed convenient to assume that cells contain certain atom groups of unknown chemical nature which make possible the binding of food substances.

Receptors.

The name of receptor was given to such groups, since substances are received into the cell through them. Inasmuch as the foods, and some other substances, which penetrate the cells differ in their chemical nature, it is probable that there are various receptors for the various types of substances.

Multiplicity of Receptors.

The binding, however, is but a preliminary step to profound changes which the substance may next undergo, through the action of other, more vital, cell constituents. That is to say, the receptor is but a link to bring the substance into relationship with the vital activities of the cell, which Ehrlich supposes may reside in a hypothetical "*Leistungskern*" (action center or nucleus).

Side-chains.

In view of this conception one readily sees the consistency of considering the receptor as a side-chain of the "*Leistungskern*," just as the chemist speaks of the various groups which may be attached to the benzol ring, or benzol nucleus, as side-chains.

In preceding pages it has been emphasized that a toxin is

Action of Toxins.

Haptophore.

order that it may injure a cell, must enter into chemical combination with its constituents, and it is a fundamental tenet of the Ehrlich theory that this union is one which takes place between the toxin and the cell receptor (side-chain). So far as known, a toxin can unite with some other substance only through the medium of its haptophorous group (as in the toxin-antitoxin reaction). This presupposes the presence of a corresponding haptophorous group on the part of the cell receptor with which the toxin unites.

As the physiologic demands are probably responsible for the character of the various receptors, it is not likely that special receptors are created when some unusual substance, as a bacterial toxin, is introduced into the body. Consequently, when a toxin unites with a cell, it probably occupies receptors which, under normal circumstances, are employed in some physiologic process.

If some inert, non-toxic substance should combine extensively with cells, a corresponding number of receptors, which ordinarily are used for normal metabolism, would be thrown out of function. This would constitute an injury, not only to the cells primarily involved, but perhaps to other cells which depend on some metabolic products of the injured cells. It is possible that the action of toxoids is of this mild nature.

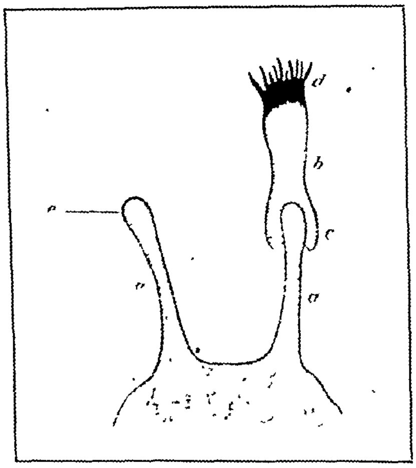

Fig. 5.—Graphic representation of receptors of the first order and of toxin uniting with the cell receptor. *a*, Cell receptor; *b*, toxin molecule; *c*, haptophore of toxin molecule; *d*, toxophore of toxin molecule; *e*, haptophore of the cell receptor. From Ehrlich's "Schlussbetrachtungen," Nothnagel's System of Medicine, vol. viii. This cut is not to be taken as representing the actual morphology of toxins or cell receptors. Nothing is known of their morphology, if, indeed, they have any. The cut is intended merely to represent, in a graphic manner, the supposed chemical structure and mode of action of these substances. This statement applies also to Figures 6 and 7.

When toxin unites with cells there is involved not only the diversion of cell receptors from their customary functions, but in addition the destructive action of the toxin on the vital parts of the cell (perhaps on the "*Leistungskern*"). The more toxin introduced, the greater the number of cell receptors bound, and the greater the injury to the cell.

Hypothesis of Weigert.

Overproduction of Side-chains.

In case a non-fatal amount of toxin has been bound, but sufficient to cause some injury, how does the cell respond to the injury? Weigert, a few years ago, gave expression to a hypothesis which is held to have some bearing on the subject under consideration. In studying regeneration following injury he concluded that tissues have the tendency to reproduce not only to the extent of making good the injury, but that an excess of new tissue resulted. The clearest example of this occurrence is that of scar formation, in which a seeming excess of new connective tissue cells appears, many of which disappear later. Similarly, when a non-fatal amount of toxin unites with the receptors, a cell defect or injury is created. The cell has for practical purposes lost so many receptors. This loss affects the vital activities of the cell, the "*Leistungskern*," and new receptors, identical with those occupied, are reproduced. Following the law stated they are reproduced in excess of the number injured, and the excess may be so great that the cell may be overfilled with them—so overfilled that many are cast off and reach the general circulation. These cast-off receptors, or side-chains, still retaining their power of uniting with toxin, constitute our antitoxin. As Behring has stated it, the receptor, when attached to the cell, is the agent through which the latter is attacked, but when cast off from the cell becomes its protector (Fig. 5).

As regards the structure of the antitoxin (cast off receptor), it is necessary to assume only the presence of the proper haptophorous group. Ehrlich designates all receptors of this simple type as "receptors of the first order." In following sections we shall have to do with receptors of the second and third order.

The following is a list of the most important antitoxins which have been prepared (Wassermann):

ANTITOXINS FOR BACTERIAL TOXINS.

Diphtheria antitoxin.
Tetanus antitoxin.
Botulism antitoxin.
Pyocyaneus antitoxin.
Symptomatic anthrax antitoxin.
Antileucocidin, an antitoxin for the leucocytic poison of the staphylococcus.
Antitoxins for the blood dissolving toxins of a number of bacteria.

ANTITOXINS FOR ANIMAL TOXINS.

Antivenin, for snake poison.
Antitoxin for scorpion poison.
Antitoxin for spider poison.
Antitoxins for certain poisons of fish, eel serum, salamander, turtle, and for wasp poison.

ANTITOXINS FOR PLANT TOXINS.

Antiricin, for a red blood corpuscle poison of the castor oil bean.
Antiabrin, for a similar poison of the jequirity bean.
Antirobin, for robin, a locust tree poison.
Anticrotin, for crotin, a toxin from the bean of *Croton tiglium*, the croton oil bean.
Hay fever antitoxin, for the toxin of pollens which cause hay fever.

ANTIFERMENTS.

Antirennet.
Antipepsin.
Antitrypsin.
Antifibrinferment.
Antiurease, for urease, a urea splitting ferment.
Antilaccase.
Antityrosinase.
Antisteapsin.
Antiferments against the ferments of bacterial cultures.

The above are true antitoxins. There are other substances, however, which occasionally exert an antagonistic action on toxins, although they probably are not true antitoxins. For example, it has been found that cholesterin neutralizes the action of tetanolysin, the hemolytic toxin of the tetanus bacillus.

The discovery of Hektoen that certain salts are able to neutralize the toxic action of some serums, by combining with the so-called complement, may also be mentioned in this connection.

(To be continued.)

Cinnamon.—Cinnamon is considered by the *Critic and Guide* a much neglected remedy. The oils of cinnamon, of cloves and of peppermint are efficient though mild antiseptics.

Clinical Reports

LEUKEMIA.

THE ULTIMATE FAILURE OF THE ROENTGEN RAYS AS A THERAPEUTIC AGENT.

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AND
CECIL M. JACK, Ph.B., M.D.
DECATUR, ILL.

In The Journal, March 26, 1904, we gave a preliminary report of a case of splenomedullary leukemia symptomatically cured by the Roentgen rays. Since then we have given a more detailed account of the same case,[1] and now as it has come to autopsy we make a final report. Especial attention will be given to the postmortem findings, in the hope that some light may be thrown on the *modus operandi* and the value of the *x*-rays in this class of cases. No attempt will be made to review the literature, as this has been done so completely by Dr. George Dock[2] quite recently.

We repeat the history of the case, as given in the other reports, together with the later developments:

Patient.—W. E., male, American, aged 30, a cigar maker, unmarried, was first examined July 1, 1903. His family history is negative, except that one sister has had tuberculosis.

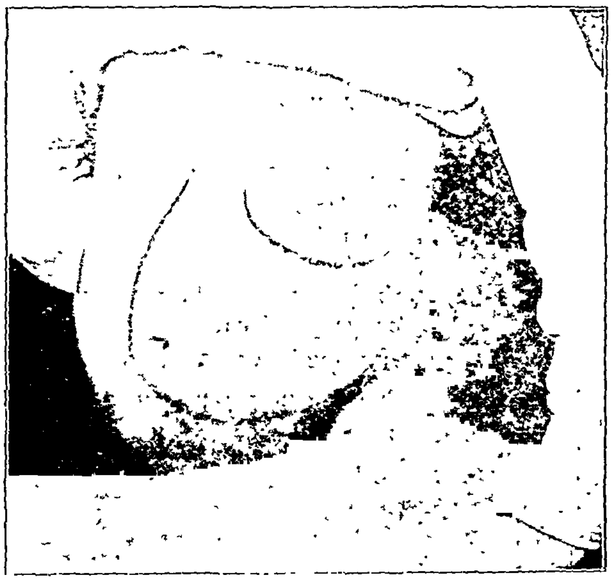

Fig. 1.—Splenomyelogenous leukemia. Photograph showing size of spleen before treatment and after four months' treatment.

History.—The patient has lived in Decatur all his life; his habits have been good; he does not use alcohol, but he is a moderate smoker. He has had the usual diseases of childhood, with good recovery in all. No history of malaria or syphilis.

Present Trouble.—The patient came to the office complaining of weakness, pain in the back and a feeling of weight and distress in the left side. Two years ago he had a fall, alighting on the lower ribs of the left side, which compelled him to stop work for two days. He has had a slight cough for some time. For six months he has been troubled with palpitation, dyspnea and slight headaches. Lately he has noticed that his shoes fit tighter at night. He becomes very weak on exertion.

Examination.—The patient is moderately well nourished, but has a somewhat cachectic appearance. His present weight is 169 pounds, which is his average summer weight; his expression is depressed; mind clear; frame medium sized; musculature soft; panniculus thin. He is slightly anemic. The visible mucous membranes are of fair color; tongue is moist. There is slight edema of ankles and legs. The lymphatic glands are not enlarged, but the inguinal glands are easily palpated. The thorax is of good size and symmetrical; expansion fair. On percussion one finds good resonance; the lower lung boundaries are normal and descend well; heart sounds are normal; the liver dullness extends to the edge of the ribs, and its thin edge is easily felt. Splenic dullness begins on the seventh rib in the midaxillary line and extends two fingers' breadth below the umbilicus in the left mammary line. To the right it extends one finger's breadth beyond the median line. On palpation the spleen is a hard, smooth, thick mass. *No notch can be felt.* The radial pulse is easily compressed and is moderately full and regular, with a rate of about 90. Temperature is 99.

Examination of Fluids.—The urine gives a slight precipitate with heat and acid, and a few hyaline casts are found in the sediment. The blood examination is as follows: Red blood corpuscles, 2,600,000; leucocytes, 800,000; hemoglobin, 65 per cent.; specific gravity, 1,050. On staining with Ehrlich's triple and Jenner's stains the reds show a slight paleness, *slight poikilocytosis and many nucleated forms.* The differential count of the leucocytes gives: Polymorphonuclear, 40 per cent.; myelocytes, 40 per cent.; eosinophiles, 8 per cent.; large mononuclear with basophilic granules, 8 per cent.; degenerates, 4 per cent.

TABLE I.

Date.	Red Cells.	White Cells.	Hemoglobin, per cent.	Nucleated Red per 100 Whites.	Small Lymphocytes.	Large Lymphocytes.	Polynuclear Neutrophiles.	Polynuclear Eosinophiles.	Myelocytes.	Myelocytes, Eosinophile.	Large Mononuclear and Transitional.	Basophiles.	Degenerates.
July 1, 1903	2,600,000	800,000	60	2	0	0	40	4	40	2	0	8	6
August 9, 1903	2,790,000	160,000	65	10	5	0	44	5	21	25	14	6	4
September 6, 1903	3,170.000	58,000	70	9	4	0	59	3	22	2	8	..	2
October 4, 1903	3,940,000	160,000	80	2	2	0	54	2	24	1	4	..	3
November 9, 1903	4,124,000	129,000	85	0	1	0	60	2	25	3	1	5	3
December 6, 1903	4,360,000	44,360	85	0	2	0	74	0	20	1	..	..	3
January 3, 1904	4,563,0 0	23,000	90	0	4	0	83	0.5	8	0	2	2	0.5
February 7, 1904	4,700,000	11,500	90	0	10	0	75	3	3	0	3	1	5
March 6, 1904	4,840,000	8,146	95	0	11	1	85	0.5	0	0	1	0	2
April 2, 1904	5,100,000	7,130	100	0	12	2.5	81	1.5	0	0	2	0	1
May 1, 1904	5,700,000	8 921	100	0	10	2	82	1	0	0	2	2	1
July 1, 1904	5,250,000	11,204	....	..	4	4	80	....	7	0	5	..	0
September 4, 1904	5,120,000	53,480	100	2	4	5	64	2	19	0	4	..	2
October 2, 1904	2,580,000	78,940	60	7	2	1	65	....	23	1	3	..	6
November 14, 1904	3,510,000	5,601	70	7	5	4	76	....	2	0	7	..	6

Clinical Diagnosis.—Splenomyelogenous leukemia.

Treatment.—The patient was informed of his condition and advised to stop work. We gave arsenic and iron internally and *x*-ray treatments to the splenic region twice a week.

Course of the Disease.—After one month the patient seems improved; he feels stronger, and his appetite is better. On examination the spleen is apparently smaller, the right edge extending only to the sternum and the lower edge on a line with the navel. The ankles are still swollen, but the blood shows a marked decrease in the number of leucocytes, with a slight increase in the red blood corpuscles and in the amount of hemoglobin. Blood smears show an apparent increase in the transitional forms with decrease of myelocytes. The normoblasts are markedly increased. The urine still contains a trace of albumin.

September 1: The patient has returned to work. His general condition is improved; appetite good, with a gain in weight. The spleen has decreased in size and a notch is felt for the first time. Edema of ankles is less. Blood: Leucocytes decreased to 58,000, with an increase in the red blood corpuscles to over 3,000,000.

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[1] Medicine, July, 1904; also Ill. Med. Jour., September, 1904.
[2] Amer. Med., Dec. 24, 1904.

Encouraged by the results of treatment, which had varied very little in the last two months, and by Senn's article which appeared at this time, it was decided to discontinue the iron and arsenic and to increase the frequency and distribution of the *x*-ray exposures. These treatments were now given daily to the splenic region, the ends of the long bones and to the sternum. In place of the iron and arsenic, one-grain capsules of quinin, three times a day, were given as a placebo.

October 1. The patient has not missed a day's work in the last month. The blood shows an increase in the number of leucocytes, the number of red blood corpuscles and the amount of hemoglobin, however, still show an increase. The spleen can be pushed to the edge of the ribs. An *x*-ray dermatitis of the splenic region has appeared once or twice, the outer layers of the skin desquamating, but by discontinuing treatment for a few days and using a dusting powder, no bad results have followed. The skin over the exposed surfaces was rough at first, but after exfoliation has become smooth again. The hair and pigment have disappeared from the parts exposed.

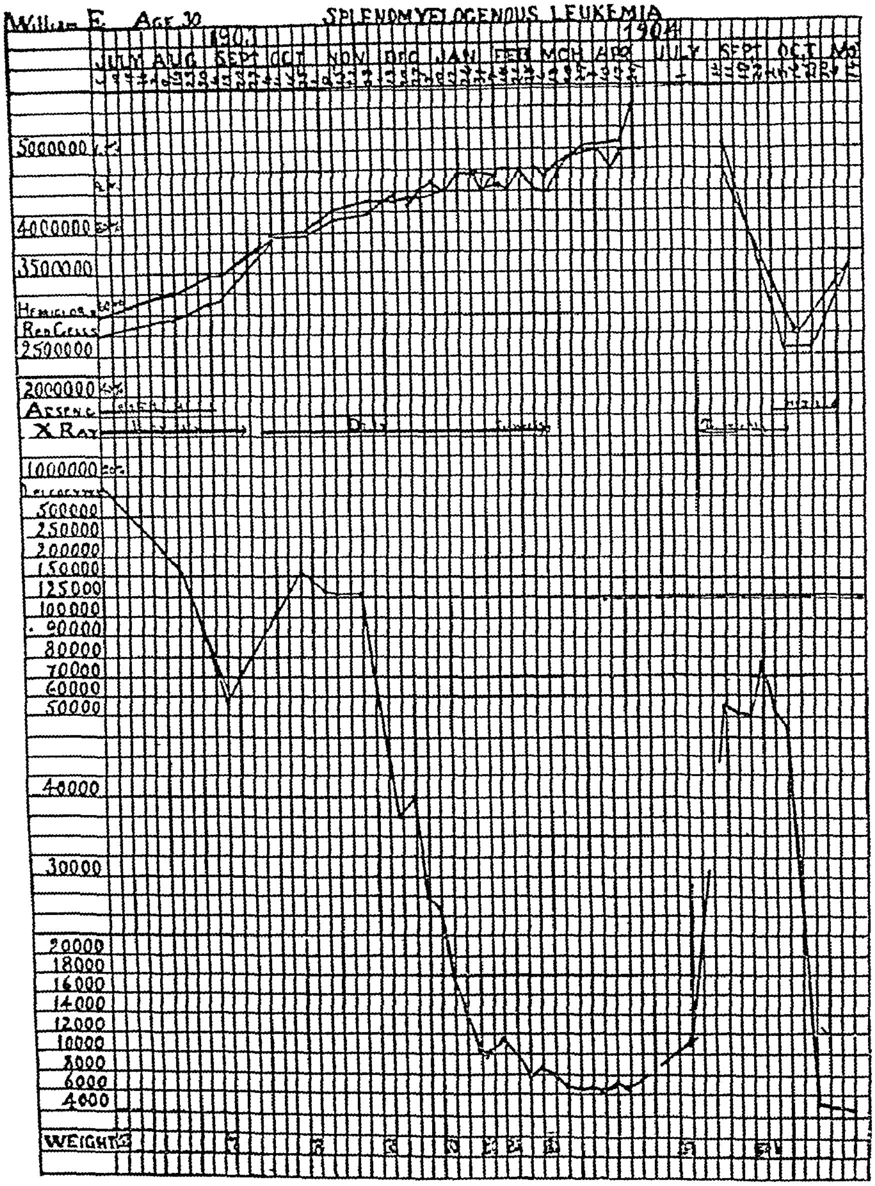

Chart 1

November 9. Blood. Leucocytes, 129,000; red blood corpuscles, 4 124 000; hemoglobin, 85 per cent. Very little variation in size and shape of the red blood corpuscles and no nucleated forms were found. Myelocytes, 25 per cent; polymorphonuclear, 60 per cent.; eosinophiles, 5 per cent; small lymphocytes, 1 per cent.; degenerates, 3 per cent.

Blood examinations were now being made weekly, and charts were made showing the results of these examinations, with dates when made (Chart 1).

In February, after seven months' treatment the albumin had all disappeared from the urine and the patient weighed 182 pounds, which is more than he had ever weighed before. The spleen could only be felt on deep palpation. Treatments were reduced to every other day, and the patient was advised to take long walks on the intervening days.

April 16. There is very slight edema of the legs. General appearance is excellent, color good; pulse full and compressible, with rate of 70.

May 1. The appearance of the patient at present is that of robust health. His complexion is florid, quite a contrast to the cachectic appearance of ten months ago. He is working daily and rides his bicycle back and forth from work. The liver is of normal size, and the spleen is not palpable even on deepest inspiration. The ankles show no edema. His weight is 184 pounds. The abdominal parietes are relaxed, but there is no ascites. The previous inguinal adenitis has entirely disappeared.

July 1. Patient returns for blood examination. Is working every day and feels fairly well. A leucocytosis of over 11,000 is found, 7 per cent. of which are myelocytes.

September 4. Patient did not return in August, but returns to-day complaining of weakness and pains in the back. He weighs 182 pounds, which is a loss of two pounds. The spleen is apparently somewhat larger, but firm. The blood shows a leucocytosis of over 50,000. Urine clear, specific gravity, 1,022; no albumin, but a few hyaline casts. X-ray treatment given.

X-ray treatments were continued for seven weeks, but the patient gradually became weaker, and on October 7 he was found to have a temperature of 102, so he was sent home to bed. His symptoms were those of a severe intoxication not unlike typhoid. The spleen had become much larger. On October 10 a marked diazo reaction was present in his urine. Widal test was negative. He had now become delirious. On October 16 his fever began to decline. The blood showed a marked decrease in both hemoglobin and the number of red cells and still a high leucocyte count. Within one week the leucocytes dropped to normal and the spleen became much smaller. A severe diarrhea developed; some blood and much mucus was passed in the stools. On October 28 urinalysis showed a clear urine, specific gravity, 1,018, acid; diazo reaction present; albumin 2.5 per cent; hyaline and granular casts numerous and a moderate amount of calcium oxalate crystals. The low typhoid state continued for two weeks longer, the condition being a semi-delirium, with great emaciation, no apparent suffering, no edema, death occurred on November 15, just sixteen months after first coming under our observation.

AUTOPSY.

Seventeen hours postmortem.

The subject is a man of average size. Skin pale and sallow; muscles small and emaciated; panniculus almost absent. Both pleura free and no fluid in pleural cavities. The heart is of normal weight, its endocardium slightly thickened; muscle is firm and of a brownish-red color. The auricles contain antemortem clots and the ventricles fluid blood. The valves are normal. The lungs show marked anthracosis and yield slight exudate on pressure. There are no airless areas, but a slight hypostasis over lower lobes. The bronchi are empty and the mucosa pale. The spleen weighs 1,133 gms. and measures 15x9x6 cm. There is one notch. The capsule is greatly thickened and cuts with resistance. The cut surface is firm and dark bluish-red in color. The stroma is greatly increased, but the malpighian corpuscles are not visible.

The liver is enlarged but firm. The left lobe is atrophic. The veins of the capsule are congested, the capsule being thickened. On section the organ is fairly rich in blood. The cut surface is granular, brownish-red in color, and the outline of the lobules is distinct.

The fibrous capsule of the kidneys strips off easily. The surface is slightly pale. On section the labyrinth and the medullary rays are distinctly outlined. Connective tissue is increased.

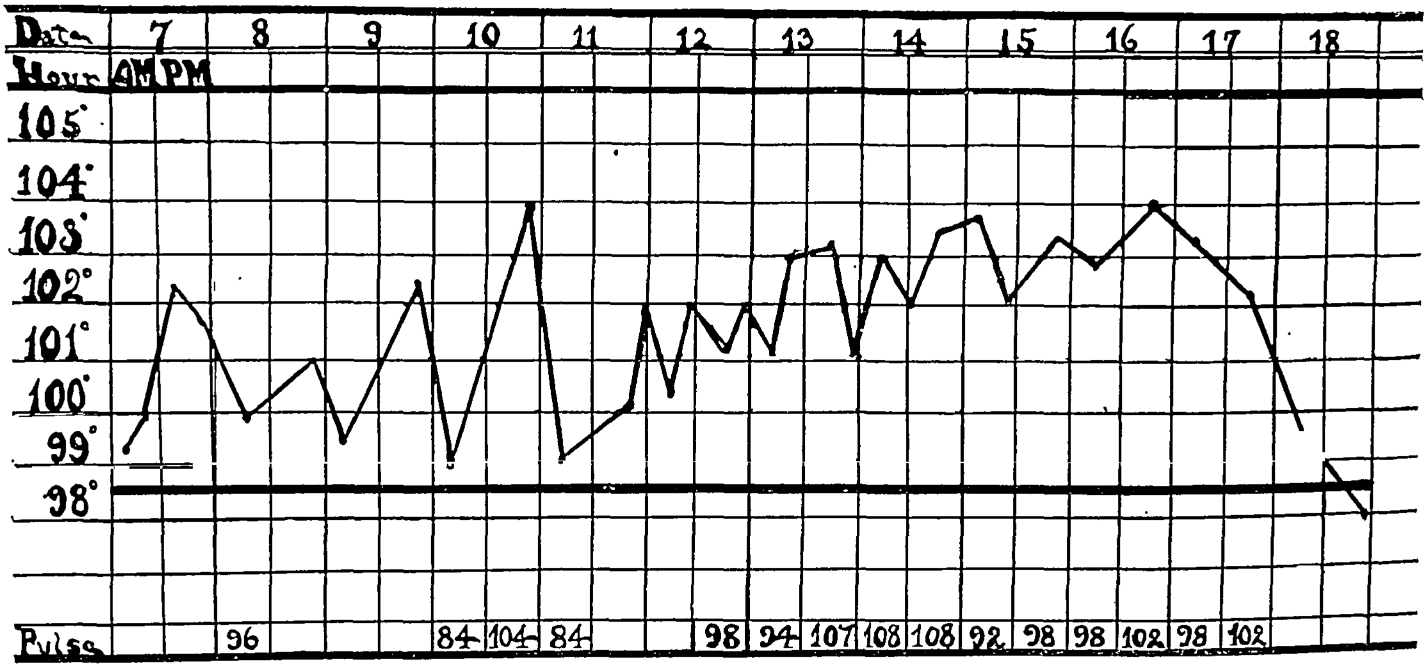

Chart 2.

The stomach is in normal position. Walls are pale. The small intestine shows no ulcers. The mucosa is pale. No enlarged glands in the mesentery. The rectal walls are much thickened and the mucosa is pale. The retroperitoneal glands are not enlarged.

Pathologic Report.—The following pathologic report was kindly made for us by Dr. A. S. Warthin of Ann Arbor, who is now doing much experimental work in this line:

Lung: There is moderate *chronic passive congestion;* there is some atrophy, and the smaller bronchi are somewhat dilated. The number of leucocytes in the blood vessels is not perceptibly increased. Lung does not show the characteristics of lung from case of leukemia.

Spleen: Marked fibrosis. There is a fibroid hyperplasia of the reticulum of the pulp closely resembling that of splenic anemia. There is marked chronic passive congestion, the venous side being greatly dilated and filled with blood. Follicles are not preserved. The cells of the pulp are *chiefly of a* fibrous-connective-tissue type or endothelial. Lymphocytes are relatively very few. Cells of the type of large lymphocytes are more numerous. There are numerous large atypical cells of the endothelial type. There are few eosinophiles, and *no myeloid changes. Leucocytes are relatively few* in the blood vessels. The general picture resembles that of a spleen of splenic anemia and not that of a leukemic case.

Liver: There is atrophy, chronic passive congestion, and some parenchymatous degeneration. Connective tissue is relatively and in some areas absolutely increased. There is no leukemic infiltration. Glisson's capsule is somewhat more cellular than *normal, but the cells are chiefly of a* connective-tissue type. Leucocytes are not increased in vessels.

Pancreas: Postmortem change. There is some atrophy with slight fatty infiltration. There is no leucocyte infiltration. Leucocytes are not increased in vessels.

Small Intestine: There is slight atrophy and there are a few lymphoid elements. There is no evidence of leukemia.

Large Intestine: Small chronic ulcers are present. There is no evidence of leukemia.

Kidney: Sections of the kidney show remarkable lesions in the form of extensive deposits of lime salts, involving chiefly the convoluted tubules. For the greater part these tubules are replaced by masses of lime salts, either completely filling up the tubule and replacing the epithelium or confined to the epithelium alone, either partly or wholly surrounding the lumen of the tubule. Some glomeruli show small deposits, and casts of lime salts are found also in the straight tubules. The deposit is, however, for the chief part, in the convoluted tubules. Such convoluted tubules as are in part free from lime salts show more or less parenchymatous degeneration. Localized areas of acute interstitial inflammation are also present and hyaline casts are found in some straight tubules. There is no leukemic infiltration and no increase of leucocytes in the blood vessels. The general picture closely resembles the parenchymatous changes with deposit of lime salts seen after poisoning with mercuric chlorid.

Lymph Glands: The small lymph glands show a lymphoid hyperplasia resembling that of lymphatic leukemia or of some of the cases reported as lymphosarcoma (aleukemic leucoblastoma?). The distinction between cortical and medullary portions is lost, the sinuses are filled with or obliterated by lymphoid cells, and the gland presents an almost uniform lymphoid structure. No germinal centers are found. The capsule in many places is infiltrated, and such infiltration extends also beyond the capsule into the surrounding fat tissue. There are no myeloid changes. Numerous large lymphocytes are present throughout the gland. There are a few eosinophiles. Leucocytes in surrounding vessels are not increased.

Summary.—The only pathologic finding suggestive of leukemic disease is the condition of the lymph glands. This resembles the gland picture seen in some cases of lymphosarcoma (aleukemic leucoblastoma?) or that of a lymphatic leukemia minus the increase of mononuclear elements in the blood. The spleen picture is of the same type as that of the splenic fibrosis of splenic anemia. Counts made of the leucocytes in the vessels of all the sections show an unusually high percentage of mononuclears. Because of the fixation, these cells could not be satisfactorily studied. There is, however, nowhere any increase of leucocytes in the vessels suggesting the existence of a leukemia.

The calcification existing in the kidney is remarkable for its extent. It would suggest the occurrence of an intoxication causing degeneration or necrosis of the epithelium of the convoluted tubules followed by deposit of lime salts, such as occurs in poisoning with mercuric chlorid, chromates, etc.

Remarks.—The postmortem findings in this case are very interesting in connection with the experimental work that has been done by H. Heinecke,[3] and also the work now being done by Warthin which he will soon publish. Heinecke found that a brief exposure of mice, rabbits and dogs to the rays induces a distinct destructive process in the lymph follicles. With an exposure too brief to induce changes in the skin, he could cause a distinct destruction of the nuclei of the leucocytes in the follicles of the spleen, leading to their almost complete disappearance. Analogous processes took place in other lymphoid elements. His remarks on the changes in the bone marrow are not clear except that some destruction of lymphoid elements took place. These experiments might suggest a physiologic basis for the use of the *x*-ray in leukemia, so far as the excess of white cells in the circulating blood and the presence of abnormal cell elements are concerned, and they compare most favorably with the results in our case. Undoubtedly the *x*-ray has a selective action, apparently affecting tissue undergoing pathologic hyperactivity and causing degeneration and necrosis of such tissue; however, the damage done is apparently greater than the good.

Dr Warthin, in summing up the pathologic findings, says: "If any conclusion is warranted from the study of the specimens, it would seem to be that the *x* ray treatment has resolved the leukemic condition into an aleukemic state, but that the essential disease process, as evidenced by the condition of the lymph glands, is still active. The leucocytes have been removed from the general circulation and from the areas of infiltration, the spleen presenting the characteristics of a chronic fibrosis. The part played by the latter would appear to be secondary. The remarkable condition of the kidneys offers room for some speculation as to the source of a toxin. Such might result from the destruction of enormous numbers of leucocytes."

It is much to be regretted that no specimen of bone marrow was obtained, for, as we believe this disease to be primarily in the bone marrow, we can come to no real conclusion until this part of the subject has been thoroughly studied.

It is to be hoped that the stimulation this form of treatment has given workers may at least lead to some conclusion as to the cause of this most interesting disease.

A CASE OF MACROCHEILIA

DUE TO ENLARGEMENT OF THE MUCOUS GLANDS OF THE LIP.

IRVIN LINDENBERGER, M.D.

FRENCH LICK, IND.

This condition may be due to one or several causes With the exception of inflammatory affections, neoplastic growths occupy a prominent position. With inflammatory thickening there exists an enlargement not only of the glands but of the tissues of the whole lip, and affecting one or both lips; there is no increase in the number of glands affected. Congenital dilatation of the lymphatic vessels, which is, more strictly speaking, an overgrowth when occurring in the tongue, produces macroglossia; when occurring in the lip, labium and other subcutaneous parts it is known as macrocheilia. Acquired lymphangiectasis is most commonly observed in the lower extremities and in the external genitals, being due to an obstruction of some nature and characterized by hyperplasia of the skin and subcutaneous tissues, producing the condition known as elephantiasis. Fraenkel[1] states that prior to a case reported by him, macrocheilia due to a neoplasm of the mucous glands of the lips was unknown. This case was more fully reported by Dr. Daniel N. Eisendrath of Chicago,[2] with a case of his own.

From the photograph of the present case, it will be noticed that the enlargement is only of the upper lip. This enlargement was especially noticeable in talking and laughing. On palpation, the lip was found to be soft and smooth, but on pressure there was a slight "shotty" feel in one or two glands on each side of the median furrow. The condition dated from a blow in the mouth, received about fifteen years previously. There has been no appreciable enlargement in the past ten years. His general health has always been good; there is no history of any specific trouble. A wedge-shaped incision disclosed a number of small glands, slightly smaller than buckshot, on each side. They were removed and the mucous membrane was sutured. Healing was prompt and the cosmetic effect was good.

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3 Münchener med Wochenft., May 3, 1904.

1. Arch. fur klinische Chirurgie, vol. xliv, 1892.
2. Annals of Surgery, September, 1904.

Lowering of the Arterial Pressure Reliable Danger Sign in Chloroform Anesthesia.—J. Tissot of Paris has been studying on dogs the relations between the modifications in the arterial pressure and the toxic action of chloroform on the heart. The arterial pressure is a reliable index of the contracting power of the heart. We know that fatal accidents from chloroform are due to the toxic action of the drug on the heart or on the nerve centers controlling its action. He found that the dogs never displayed any threatening symptoms as long as the arterial pressure was above 100 mm. Hg, but respiratory arrest occurred whenever the pressure dropped to 60 mm. Cardiac syncope occurred if it fell near or below 50 mm. Hg. The chloroformization in his experiments was always slow and gradual. Tissot believes that these data will be found to apply also to man, and that by watching the arterial pressure we will be able to detect impending danger long before it is revealed by any other sign. Tissot's communication was presented at the meeting of the Paris Académie des Sciences, February 20, 1905.

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EPIDEMIC CEREBROSPINAL MENINGITIS.

Just as there are numerous forms of arthritis due to different etiologic factors, but one in particular due to a specific micro-organism and characterized by a definite symptomatology, namely, acute rheumatic polyarthritis, so also among the several varieties of meningitis of diverse origin there stands out one different from all the rest and dependent on its own specific bacterial cause, namely, epidemic cerebrospinal meningitis. While no doubt cases of the latter disease had been recognized previously, its epidemic occurrence was first noted at Geneva in 1805. A year later the occurrence of an epidemic at Medfield, Mass., was described independently, and a most complete report on the subject was made to the Massachusetts Medical Society in 1809 by a committee appointed for the purpose. In 1811 a classical study of the disease was published by Elisha North of Goshen, Conn., and an admirable account of its history and its relation to other epidemics was given by Dr. S. G. Weber in the Boylston Prize Essay for 1866. A thoroughly modern and scientific report on the subject was made to the Massachusetts State Board of Health in 1898 by Councilman, Mallory, and Wright, bearing on the epidemic in that state during the winter and spring of 1896-1897.

The following anatomic peculiarities were early noted in cases of epidemic cerebrospinal meningitis as compared with other varieties of meningitis, namely, the character of the exudate, the greater degree of involvement of the spinal membranes, extension of the inflammatory process to the brain and spinal cord and along the nerves, together with a general absence of inflammatory lesions in the intima of the blood vessels. It was not, however, until the dawn of the bacteriologic era that it became possible to establish the absolute identity and distinctiveness of epidemic cerebrospinal meningitis. Leichtenstern, in 1885, found cocci, singly and in groups, arranged like gonococci in leucocytes in the meningeal exudate. Weichselbaum, in 1886, observed a diplococcus resembling the gonococcus, in small numbers, in cases of acute cerebrospinal meningitis, and occurring almost solely within the cells. The organism grew best on agar-agar, but it did not thrive at room temperature. It was not, however, readily demonstrable in sections of the meninges, in which and in cultures it was decolored by Gram's method. It proved pathogenic for lower animals, and was given the name of *Diplococcus intracellularis meningitidis*. These observations were subsequently confirmed by numerous other investigators, while in 1896 Heubner discovered the organism in fluid obtained by lumbar puncture from cases of epidemic cerebrospinal meningitis. Schwabach, in 1891, described diplococci in pus cells from a case of otitis media secondary to meningitis. Kischensky, in 1895, found the same micro-organisms in hemorrhagic foci in the lungs, and Scherer, in the same year, found them in the nasal secretion. The specificity of the disease has thus been established.

Epidemic cerebrospinal meningitis occurs most commonly in late winter and spring, and especially in young adults and children. It has often been observed earliest among troops in a community. The disease does not always occur in epidemic form and the extension is not continuous. Isolated epidemics are the rule and sporadic cases are not uncommon. Like other infectious diseases, epidemic cerebrospinal meningitis is essentially transmissible. The channel of communication has not been demonstrated, but the atmosphere is most probably the medium of conveyance. On account of the concealed and inaccessible localization of the morbid process the danger from this source is probably comparatively slight. Nevertheless, a limited number of cases have been placed on record in which more than one member of a family or household has been attacked by the disease. Osler, in the Cavendish Lecture for 1899, stated that he knew of no case in recent American experience in which a physician or nurse had been attacked or in which cases had developed among other patients in a hospital, but an unfortunate exception to this is afforded in the death at Philadelphia recently of Dr. A. B. Craig, who acquired the disease from attendance on a patient suffering from cerebrospinal meningitis. It has been suggested that an insect may play the part of intermediate host, but evidence in support of such an hypothesis is as yet wanting.

The disease usually sets in suddenly, with severe headache and pains in the neck and the back, to which muscular rigidity is soon added. In children there may be convulsions. At times there is a brief prodromal period attended with general malaise and terminated by a chill. The temperature rises, although the pulse does not increase proportionately in frequency; both are characterized by irregularity. Other symptoms are vomiting, delirium, derangement of consciousness, varying from drowsiness and stupor to coma, paralysis of varying degree and distribution, and various cutaneous eruptions—erythematous, miliary, herpetic, morbilloid, petechial. The course of the disease is rapid in fatal cases, the duration varying from a few hours to several days. In less acute cases recovery may be retarded for a prolonged period. After death the pia-arachnoid of both brain and spinal cord is found early in acute cases to be the seat of hyperemia and purulent infiltration, and later it is found to be covered with a fibrinopurulent exudation, while in chronic cases there is fibrous thickening, with or without exudation. The tissues of the brain and cord themselves are also involved, and frequently, likewise, the cranial nerves, especially the second, fifth, seventh and eighth, and the roots of the spinal nerves. Pneumonia is a frequent complication. The nose and throat may be the seat of inflammation, and the sense of smell and taste may be lost. Deafness may result from purulent inflammation of the labyrinth of the ear or from involvement of the auditory nerve. The eyes often are suffused and ophthalmia has been observed. The ocular muscles, internal as well as external, may be irritated or paralyzed, so that the pupils may be contracted or dilated, and strabismus and nystagmus be present. The optic papilla may be congested or inflamed, and atrophy and blindness may result. The joints are frequently the seat of inflammation. Leucocytosis is invariably present, the polymorphonuclear leucocytes especially being increased. The number of red blood corpuscles undergoes little change. Mental impairment of varying degree is not a rare sequel.

The diagnosis of epidemic cerebrospinal meningitis is ordinarily easy, but it should always be confirmed by the demonstration of the *Diplococcus intracellularis meningitidis* in the fluid removed by lumbar puncture.

The prognosis is unfavorable, death occurring in from 20 to 70 per cent. of the cases. Even when recovery takes place serious sequels may persist.

Little is to be hoped directly from treatment. There is no specific. The future may develop an antitoxin, but even under the most favorable circumstances this is more likely to have a prophylactic than a curative value. The antitoxin of diphtheria has been employed as a remedial measure, but its use has been unattended with success. Inasmuch as the disease is transmissible, danger from this source should be minimized by isolating the patient and by disinfecting the discharges, especially from the nose, the ear and the lungs. He should be placed under the most favorable hygienic surroundings, in a large, well-ventilated quiet apartment. The intestinal tract should be cleansed by a purgative dose of calomel, followed by a saline, and the functions of the emunctories generally should be sustained. The diet should be simple, digestible and nutritious. A robust patient should be bled from a vein. Leeches applied behind the ear may relieve the headache and may exert a beneficial influence on the inflammatory process in the skull. A similarly good effect may be brought about by the application to the head and spine of cold in the form of ice in bags, or of water passed in a continuous stream through tubes. Restlessness should be allayed by narcotics, of which the best is morphin, preferably administered hypodermically. If there be a tendency to stupor, stimulants, such as camphor, musk, valerian, ether, wine, champagne or coffee, will be indicated. Lumbar puncture has been proposed and has been employed as a therapeutic procedure. While it has afforded a certain measure of symptomatic relief in some cases, permanently effective results have not yet been obtained from this measure. The same statement is applicable to trephining the skull and the spinal column, with irrigation and drainage.

From the foregoing considerations it will accordingly be seen that here, as elsewhere, the most effective as well as the most feasible treatment consists in a rational application of the essential principles of modern prophylaxis, namely, separation of the sick from the well, and disinfection of all infected matters.

THE NATIONAL INVESTIGATION OF LEPROSY.

A bill recently passed by Congress provides that when the Territory of Hawaii shall have ceded to the United States in perpetuity a tract of land one mile square within the leper settlement on the Island of Molokai, a hospital station and laboratory of the U. S. Public Health and Marine-Hospital Service shall be established thereon for the study of the methods of transmission, cause and treatment of leprosy. It further authorizes the Secretary of the Treasury to cause the erection on the site selected of suitable and necessary buildings, and that the surgeon general of the Public Health and Marine-Hospital Service, through his accredited agent, may receive patients afflicted with leprosy and committed to his care under the legal authorization of the Territory of Hawaii. These patients are not to exceed forty in number to be under treatment at any one time, and they shall remain under the jurisdiction of the surgeon general until returned to the proper health authorities of Hawaii.

The surgeon general, with the approval of the Secretary of the Treasury, is authorized also to detail, or to appoint, for the purposes of these investigations, any medical officers, acting assistant surgeons and others who may be necessary for the purpose. The sum of $100,000 is appropriated for the erection of the buildings, and $50,000 for the maintenance and pay of officers and employes for the fiscal year ending June 30, 1906.

The treatment of the disease in the past, with few exceptions, has been rudimentary, empirical and lacking in concerted effort to establish a cure. There can be no doubt that leprosy is spreading, and that more systematic work should be done to prevent the further increase of the disease as well as to care for the sufferers.

In spite of the discovery of the cause of leprosy, the *Bacillus lepræ* by Hansen and its investigation by others, there is but little more known of the methods of transmission and rational treatment of the disease than was known in Mosaic times. The act above referred to is in no sense an act to relieve the health authorities of the Territory of Hawaii of the care of the lepers of that country. It simply contemplates that the rich store of material offered by the thousand or more lepers confined within the limits of the leper colony on the Island of Molokai should be made use of with a view to determine the methods of transmission, the cause of the spread and the treatment of leprosy. There can be little doubt that the treatment of leprosy affords a field of work full at once of promise and of arduous effort. Lepers are cured from time to time; indeed, the reports of United States consular officers in China would seem to indicate that a line of treatment instituted in that country by Raszlag promises to be of great value.

It has been reported that a line of treatment, which is successful in its results, has recently been put in operation by Dr. Isadore Dyer, and it has been announced that Dr. Rost[1] of the Indian Medical Service has succeeded by special technic in cultivating the *Bacillus lepræ*, and in preparing from his cultures a material which he designates "leprolin," and which he claims is applicable to the treatment of the disease. Treatment, however, is of comparatively little avail unless at the same time we can arrive at definite and scientific information as to the methods of the transmission of the disease, looking to its prophylaxis as well as to its cure. How the causative organism gains entrance to the economy we do not know. Why it is that the infection of the disease is not much more widely spread among the Caucasian races than it is, we can not decide. What line affords the greatest promise of success, we can not tell. All of these questions, it is hoped, will be solved by the investigations about to be made in Hawaii.

The condition of the leper of Hawaii, even under the enlightened management of the leper station at Molokai, is deplorable in the extreme. The search for lepers in the islands is active and unceasing. When a case of leprosy is discovered the person is brought before a board of leprosy experts, and it being decided that the disease is leprosy, the unfortunate is sent to the Island of Molokai, there to remain for the remainder of his natural life, virtually a prisoner, and not because a crime against society has been committed, but because he has been stricken with a disease recognized as communicable and apparently incurable.

It is sincerely to be hoped that succeeding congresses will make the necessary small appropriations for the maintenance of the experimental station, and that the far-reaching results will inspire those having the matter in charge with a degree of enthusiasm which will be the best guarantee of success. Though there are not wanting instances of the establishment of settlements and leprosaria for the segregation and care of lepers, it seems to be left for the Government of the United States to have instituted systematic, well-directed efforts looking to the cure of the disease. The undertaking is worthy of every success, and it would seem that for the first time in the history of the world there is hope for the leper.

EXPERIMENTAL MEASLES.

As early as 1758, Francis Home of Edinburgh attempted the inoculation of measles. His method consisted in saturating cotton with the blood taken from the skin of a patient suffering from the disease and applying it to an abrasion in the individual to be inoculated. He reported 15 cases of inoculation, but an analysis of these cases in the light of our present knowledge makes it seem certain that he was not successful in reproducing the disease in any instance.

Since Home's work, many physicians have tried to produce measles experimentally, and among them Wachsel, Speranza, Katona, McGirr and Bufalini asserted that they were successful. Some used blood, others tears, and others nasal mucus as a source of the virus. A critical study of their methods and results show them to be of but little value, for, in the first place, the possibility of natural infection was scarcely ever excluded, and, in the second place, the evidence that the eruptive diseases which followed the inoculation were in reality measles is not at all convincing. The only experiments in the literature reported as successful which can lay any claim to credence are those of Mayer of Vienna, made during the epidemics of measles in 1845-51. His results have not been reported in great detail, but they impress us as being reliable. He states that he "vaccinated" successfully six times by using as his inoculation material scrapings from the center of a rubeolous spot. These scrapings must have included blood, epithelial débris and tissue juices, and the experiments, though undoubtedly successful as far as the production of the disease in at least two cases is concerned, do not permit any decision as to the exact localization of the virus in the infected individual, i. e., to say whether it exists in the blood alone, the skin alone, or in the tissue-juices.

The conditions of successful experimentation with measles are difficult to realize. The possibility of natural infection must be excluded. Candidates susceptible to the disease must be found and their consent to inoculation must be obtained. They must be kept isolated. The virus must be derived from a reliable source. There must be nothing equivocal about the experimenter, or in any way connected with the conditions of the experiment. The proper investigation and ideal conditions appear to have been met recently. Hektoen,[1] at the Memorial Institute for Infectious Diseases in Chicago, has brought the indisputable proof not only first of the inoculability of measles by subcutaneous injection, but, second, of the existence of the virus in the blood of patients during the early eruption; and, third, of the retention of virulence by blood introduced into ascites-broth and kept at a temperature of 37° C. for twenty-four hours. He has demonstrated that, though the exact nature of the infective agent is as yet unknown, it is possible to obtain the virus of measles in a relatively pure state, at least unmixed with other microbes; this gives opportunity for the fruitful application to the infective agent of a whole series of methods of investigation hitherto not feasible.

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[1] Indian Med. Gaz., June, 1904, abstracted in The Journal, July 23, 1904, p. 286.

[1] Hektoen, L.: Experimental Measles, *Jour. Infectious Dis.*, Chicago, 1905, vol. ii, pp. 238-255. Abstracted in this issue of The Journal, p. 909.

For the details of Hektoen's experiments and an account of the careful controls made, the original article should be consulted.

TRUTH AND POETRY CONCERNING URIC ACID.

XI.

Up to the present our review has dealt chiefly with the researches bearing on the normal physiologic relations of uric acid, and we have, we believe, presented to our readers, though in very brief form, all of the important facts which may be considered as established in connection therewith. We desire now to turn to a consideration of the studies made on uric acid in disease, in other words, to the pathologic physiology of the substance. Though the discussion of this side of our topic will doubtless be even more interesting to our readers than that of the normal physiology, it is necessary to confess in the beginning that only a small number of definite facts on the pathologic side have thus far been accumulated, and that our knowledge of the significance of uric acid in pathologic processes is extremely fragmentary. In the researches on the pathology of uric acid we find investigators indulging in assumptions and theories, as a rule, rather than reporting facts—the articles on the topic teem with "poetry," and are singularly deficient in content of recognizable "truth."

Of the various conditions in which deviations from the normal uric-acid relations have been observed, two stand out prominently from the rest, inasmuch as in them it has become matter of common belief that the clinical manifestations are directly due to these deviations; we refer to gout and to the so-called uric-acid diathesis. In diseases like pneumonia and leukemia, in which, as we have seen, uric-acid formation and excretion may be increased, no one attributes the cause of the diseases or the symptoms of the patients to the altered uric-acid metabolism; it is assumed that the change in the uric-acid relations is, in them, a secondary phenomenon, a modification resulting from the primary pathologic process. Even in the uric-acid diathesis there is a good deal of evidence to indicate that we are concerned merely with altered conditions of solubility of uric acid and urates rather than with real disturbances in uric-acid formation and destruction; so that it is practically in gout alone that disturbances of actual uric-acid metabolism are held primarily responsible for abnormal clinical manifestations.

In gout, as everybody knows, two characteristic clinical phenomena are met with—the so-called gouty attacks of inflammation and the gouty deposits or tophi. The attacks of gouty inflammation are especially prone to affect the small, distal joints of the extremities, the metacarpophalangeal joint of the great toe being most frequently involved. The arthritis of gout is distinguished further from the other arthritides (1) by its frequent relation to excessive eating or drinking, (2) by its tendency to come on suddenly in the night, and (3) by the marked participation in the inflammatory process of the soft parts surrounding the joint. The gouty deposits or tophi, on the other hand, occur usually without any accompanying acute inflammatory reaction in their neighborhood. No matter, then, to what theory of gout we incline, we must see to it that our theory accounts for the origin of the acute gouty attacks of inflammation, that it explains how the tophi arise, and that it gives us some clue to the sites of predilection, both of the inflammations and of the gouty deposits.

Even before the end of the eighteenth century, shortly after the discovery of uric acid itself, Wollaston demonstrated the uratic nature of gouty deposits, and gave expression to the view that uric acid, in some way or another, stands in definite relation to the pathologic physiology of gout. Though Wollaston's idea received support from Forbes and later from Cruveilhier, it was strongly opposed by Scudamore, an authority whose opinion had great weight with his contemporaries. Accordingly, we find in the early part of the nineteenth century a whole series of hypotheses developed to explain the essential nature of gout, independently of the relation of uric acid to it. Some attributed the disease to alterations in the vascular system, others to intestinal disturbances, still others regarded it as of neural origin, and finally, there were those who believed it to be due to a toxemia, to the existence of some *materia morbi* circulating in the blood.

Scudamore himself asserted that gout is due to weakness of the blood vessels in the portal system, and that as a result there is abnormal secretion of the bile, and, indeed, a general disturbance of secretion throughout the intestinal canal. Gairdner held that the gouty pains are due to the rupture or extreme dilatation of capillaries around the fine nerve fibers as a result of venous congestion. Parry maintained that the essential pathology of gout consists in an uneven distribution of the blood, and that the gouty paroxysm is to be viewed simply as an effort to restore the normal equilibrium. Of those who favored an intestinal origin, Sutton and Todd, both English physicians, may be mentioned. Todd's idea was that in gout, through some pathologic activity of the duodenum, there is increased formation of lactic acid, and further, that, owing to hepatic disturbances, biliary constituents are retained in the blood. Cullen was the especial champion of the theory of a nervous origin of gout; the affection of the nervous system leads, he thought, to a depression of tonus. That gout is due to some sort of toxemia was the view advanced by Henry Holland, though he did not speculate as to the exact nature of the noxa concerned.

Note how gratuitous were most of the assumptions in these older theories of gout! For the most part, they were mere creations of the imagination, unsubstantial fumes of fancy, effects of the indulgence of revery. Such stretches of the imagination, uncontrolled by actual observation and scientific experiment, have never brought us far in medicine, and never can bring us far. Instead, nature must be interrogated and she must be compelled to answer the questions herself. If we are to get accurate ideas regarding what goes on inside a gouty patient, we must draw the information in some way out of the patient himself, and take it into our minds through the medium of our organs of sense; we may not hope to attain to any significant truth in the matter simply by the use of our so-called "mind's eye." To some of the objective studies of gout in contrast with these subjective inventions it is our intention to advert in the next installment of this review.

MORBID ALTERATIONS IN BONE MARROW.

A satisfactory explanation is yet wanting for the difference in the changes that take place in the number of leucocytes in cases of typhoid fever on the one hand and of other infectious diseases, notably pneumonia, on the other hand. In the former, when uncomplicated, the number, as is well known, is invariably diminished, while in the latter it is generally increased. It has been demonstrated that a close relationship exists between certain cells of the hemopoietic organs and the cells of the circulating blood. Various alterations in the bone marrow that appear to be absent in cases of other infectious diseases have been observed in cases of typhoid fever, and in this fact may reside, in part at least, the explanation for the phenomena under consideration.

These interesting observations have been confirmed by [illegible] results of a comparative study recently made by Dr. [illegible]ld T. Longcope.[1] Examination of the material [illegible] cases of typhoid fever disclosed the existence [illegible] definite and histologic lesions closely resem[illegible]nges in the mesenteric lymph nodes, in the [illegible]icles of the intestine and in the spleen. [illegible]s consisted in the presence of many [illegible]rge phagocytes and foci of necrosis, [illegible]yperplasia of the blood-forming cells. [illegible]n many cases in which death was [illegible]nd general peritonitis there were [illegible]generative changes in the blood-[illegible] with marked edema and con-[illegible] Differential counts of the bone-[illegible]ases disclosed a marked relative [illegible]id cells over the granular myelo-[illegible]ow from 15 cases of acute lobar [illegible]eritonitis, 1 of acute cerebro-[illegible]etroperitoneal abscess and 1 [illegible]hibited similar alterations, though differing in many important particulars from those observed in the cases of typhoid fever. There was more or less extensive hyperplasia of the blood-forming cells, with a marked relative increase in the granular myelocytes over the lymphoid cells. In the cases of peritonitis due to other causes than typhoid perforation, diffuse degenerative changes were absent. In none of the cases of this group were foci of necrosis found. Large phagocytic cells were exceedingly rare or entirely absent. The bone marrow from 4 cases of nephritis and from 1 of carcinoma of the gall bladder exhibited no distinctive pathologic alterations, and seemed to resemble closely the marrow from two normal individuals.

From the evidence which is thus afforded it seems not impossible that the lesions in the bone marrow in cases of typhoid fever are in some way related to, and perhaps responsible for, the hypoleucocytosis characteristic of the disease. It also seems probable that the lesions in the bone marrow in cases of acute lobar pneumonia, peritonitis and other infectious diseases bear a close relation to the hyperleucocytosis so commonly observed in these conditions. May it not be that the character of the cells which are proliferated plays a more important part than has generally been assigned to it? It seems reasonable to suppose that if the proliferated type of cell is one which normally emigrates into the circulation, leucocytosis should occur, while if the proliferated cell is an undifferentiated one, such as would normally remain in the bone marrow, leucocytosis should not occur. The question is one which is difficult of solution, inasmuch as we can not hope by histologic means alone to separate the rôle played by chemotaxis from that played by cell differentiation. This can only be done by experimental means, and as yet it is difficult to see how the problem can be attacked experimentally. Whatever the ultimate explanation of the phenomena may be, they themselves are apparent, and serve to explain certain *clinico-pathologic* facts in these two classes of infection.

IN LINE OF DUTY.

Among the deaths reported in this issue of The Journal are those of Dr. Albert B. Craig of Philadelphia and Dr. James A. Moore of New Haven, both of whom died from cerebrospinal meningitis, the disease in each case having been contracted from patients. These men died in line of duty, as do soldiers who fall in battle or who die from disease contracted in service. The soldier does not consider it heroic to do his duty, nor does the physician who succumbs while fighting disease as a part of his professional duty. The physician who shows himself a coward in the presence of the danger of infection or contagion is deserving of nothing but contempt and obloquy. The deaths of men like these bid us pause and reflect on the heritage of honor and of sacred trust that is ours as physicians.

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[1] [illegible] Laboratory of the Pennsylvania

A HINT TO THE DOUBTERS.

If we are not mistaken, the majority of medical journals, the majority of physicians, the majority of pharmacists, the majority of pharmaceutic journals, in fact the majority of all who have thought about the subject, have said that the enormous use of secret nostrums by the medical profession of our country is a most serious evil. Destructive criticisms have been made, and there has been any amount of fault-finding in regard to conditions; in fact, many excellent men have said that things could not be worse than they are at present. The movement now started to try to get rid of part of the evil and, if possible, to solve some of the problems connected with it, may be a failure, as some of our contemporaries have kindly intimated—and it may be a success. If the latter, of course everyone will appreciate that good has resulted, i. e., everyone but the nostrum manufacturer. On the other hand, if it all ends in a failure, we will be no worse off than we were before, and we will be richer by experience. Consequently, we do hope that those who are fearing this failure will not lie awake at nights worrying about it.

MEDICAL MUSEUMS IN MEDICAL TEACHING.

In the article by Dr. Abbott in this issue of THE JOURNAL,[1] it is stated that, while the laboratory methods of medical teaching are utilized in this country as much as, or more than, in any other, it is here that the remarkable fitness of the medical museum for teaching purposes is perhaps least understood. We are not affirming nor disputing this statement, the conditional "perhaps" is an essential saving clause to any such utterance in regard to the United States. We may have institutions in which the admirable system of McGill is equaled if not excelled. This, however, does not in any way lessen the advisability of calling more general attention to this method of imparting instruction. Object-teaching, in all recent times, has been recognized as one of the most important branches of any complete system of education, and, in certain ways, it is as valuable in advanced professional studies as it is in the more elementary subjects. The case method in law studies, and the hospital year which should properly finish off every medical student's education, are the fullest adaptations of this method in modern professional instruction. It is not every medical student, however, who can avail himself of the advantages of hospital practice, and, even could he do so, the plan of utilizing the medical museum, as described by Dr. Abbott, could do him nothing but good. Properly carried out, this method of instruction can not fail to strengthen the student's powers of observation and to render easier of solution many of the problems likely to be met in his future practical work. A well-arranged and complete medical museum should be an adjunct to the training given in every medical school, and its systematic utilization according to a well-devised plan should be made an essential part of the instruction of the more advanced classes. This method of teaching holds great possibilities for the betterment of the instruction in medical colleges.

THE VALUE AND LIMITATIONS OF THE X-RAY TREATMENT OF MALIGNANT GROWTHS OF EPITHELIAL ORIGIN.

The correct estimation of the value of a given therapeutic agent in a given disease is often a difficult matter, on account of the many factors which must be taken into consideration in forming a judgment. In the treatment of new growths of a malignant character, the primary question to be considered is whether the suggested agent will completely destroy the focus of disease; then, if this question be answered in the affirmative, whether or not the destruction is as rapid and as free from risk as agencies already existing. In certain types of malignant neoplasm, early removal and freedom from risk may be accepted almost as synonymous terms, for the only risk of vital importance is the occurrence of metastases, and the danger of these secondary growths is often in direct ratio to the time which elapses between the discovery of the growth and its removal. In other forms of malignant growth, and particularly in certain superficial slow-growing epitheliomata, risk of metastasis is almost nil, and the question of risk hardly enters into consideration. At times the whole question is complicated by the ineradicable antipathy to cold steel which some patients possess. The treatment of malignant epithelial neoplasms by the *x*-rays, which at present enjoys considerable favor in certain quarters, must be submitted to criticism along the lines above mentioned if its true value is to be determined. Numerous papers bearing on this subject have been published in the past few years, and the recent reports of Williams[1] and of Vose and Howe[2] give a good idea of what is to be expected from a clinical standpoint, and also of the changes which occur in new growths as a result of *x*-ray treatment. From the clinical experience it seems quite certain that the treatment is not to be relied on in all cases. The cases in which it is to be used must be selected with care, and, as a rule, only long-standing cases which have shown no tendency to metastases, or more acute cases in which the lesion is palpably superficial, should be subjected to the treatment. In other words, the type of growth which is especially suited to this form of treatment is the slow-growing superficial form of epithelioma commonly described as rodent ulcer. Further than this, the fact must be emphasized that the *x*-ray treatment of deeply-extending epitheliomata or carcinomata is not merely valueless but actually dangerous. It has been shown conclusively that in many such cases, even though the superficial parts of the growth may be destroyed, the more distant portions are often actually stimulated to increased proliferation. It can not, of course, be denied that there are cases recorded in medical literature in which relatively deep-seated growths have been favorably influenced by *x*-ray treatment, but these cases form a very small minority and are merely the exception which proves the rule. The statement of some writers that the surrounding healthy tissue is spared is not confirmed by the observations of Vose and Howe, which show that if the rays be used strongly enough to cause more than superficial destruction of a growth they will also produce burns of the surrounding tissue. The deductions to be drawn from these facts are not very encouraging.

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[1] See page 935.

[1] American Journal of the Medical Sciences, vol. cxxix, No. 3.

[2] Journal of Medical Research, vol. xiii, No. 2. Abstracted in THE JOURNAL, p. 981.

Medical News.

ILLINOIS.

City Gives to Hospitals.—The city council of Joliet has appropriated $1,000 each to St. Joseph's and Silver Cross hospitals.

Novel Way to Help Hospital.—J. W. Boice advertises that half of the proceeds of the auction sale of his farm implements and effects will be donated to the Rockford City Hospital. The sale was announced for March 21.

In Favor of Defendant.—In the case of George Barnes who claimed that he had been permanently injured by treatment at the hands of Dr. William M. Roberts, Norris. and wanted damages, the jury found for the defendant.

Silver Jubilee of Hospital.—On March 22, St. Joseph's Hospital, Bloomington, celebrated the completion of its first quarter century of work. Since its foundation the hospital has cared for 5,017 patients, 1,672 of which were charity cases.

Personal.—Dr. Henry Hatch, Quincy, has been forced by ill health to give up his practice for a time, and has gone away for rest and change.——Dr. John N. Shaff, Alton, physician of Madison County, is seriously ill from septicemia due to an operation wound.——Dr. Bird M. Lurnell sails for Europe Monday.

Chicago.

Cocain Conviction.—Dr. Adolph C. Brendecke was again fined $100 and costs for selling cocain without a prescription.

Bequests to Hospitals.—By the will of the late John Murphy, $2,000 each was bequeathed to St. Luke's, Mercy, Alexian Brothers and Presbyterian Hospitals.

Davis Memorial Tablet.—The senior class of the Northwestern University Medical School has erected a marble memorial tablet for the late Dr. N. S. Davis, in Davis Hall. It bears the inscription: "Good and Great, He Maketh the Earth Wholesome."

Deaths of the Week.—During the week ended March 18, 557 deaths were reported—equivalent to an annual mortality of 14.57 per 1,000. Pneumonia still led, with 103 deaths. Other principal death causes were: Consumption, 63; heart disease, 42; violence, 40; nephritis, 34; bronchitis, 31, and cancer, 22. Measles caused 8 deaths; scarlet fever, 2; smallpox, 3; diphtheria and whooping cough each, 11, and typhoid fever, 4.

In Spite of Repeated Warning.—Eighteen cases of smallpox were removed to the Isolation Hospital during the week. Of this number 11 never had been vaccinated; 7 had old scars, said to be from vaccinations made in childhood; not one had ever been revaccinated. The ages of those with old scars were 32, 33, 34, 42, 43, 46 and 47 years, respectively. Among the victims were 4 unvaccinated children under the school age and 1 child in school with a false certificate of vaccination, signed by a doctor.

MARYLAND.

Personal.—Dr. Joshua W. Hering, Westminster, has been appointed a member of the board of visitors of the Maryland Home for Feeble Minded.

New Hospital at Cumberland.—A private hospital has been incorporated at Cumberland, with a capital stock of $25,000, known as the Allegany Hospital, and has purchased an old mansion, which will be remodeled. Among the incorporators are Drs. Robert Y. Fechtig, Edward F. White. W. M. Hodges, Charles Brace, William B. Foard, Edwin B. Claybrook, Henry S. Wailes. George L. Broadrup, and Arthur H. Hawkins.

Baltimore.

Phthisis and Pneumonia.—The health report last week showed 38 deaths from pneumonia and only 16 from consumption.

Abortionist Sentenced.—Dr. Robert X. Giering, who was arrested about two weeks ago on the charge of performing a criminal operation, pleaded guilty when arraigned in the Criminal Court, March 18. On the request of the state's attorney, who said that there were extenuating circumstances, he was released on payment of a fine of $1,000.

Quarter Club Revived.—The Quarter Club, incorporated in 1902, for the purpose of collecting a fund for a state sanitarium for consumptives, and which was suspended by the great fire, has been revived. A series of lectures will be delivered and a book sale held next fall to raise funds. About 500 books containing authors' names will be sold by auction.

Ancient History of Typhoid.—At the last meeting of the Johns Hopkins Historical Club Dr. William H. Welch pointed out a passage in the writings of Thomas Willis, giving a very good résumé of the symptoms of typhoid fever and showing that he must have recognized that disease as a distinct entity. He described the intestinal ulcers as resembling smallpox pustular ulcerations.

To Help Visitors.—A bureau of information in charge of a committee of the medical staff has been opened at Johns Hopkins University Hospital to look after physicians visiting Baltimore and to extend to them invitations to the daily operative and clinical work of the various departments. A cordial welcome is extended to all such persons, and everything will be done to make their stay in the city agreeable and profitable.

"Christ's Institution" Again.—A graduate from the "Medico-Chirurgical and Theological College of Christ's Institution," a nondescript but chartered corporation of this city, run by negroes, has applied for a mandamus to compel the board of examiners of the Medical and Chirurgical Faculty of Maryland to issue him a license to practice in this state. The case is set for hearing April 1. This is the institution in whose application for a charter the name of one of the faculty appeared by a crossmark. Shortly after it started each member of the faculty had attached to his name in the catalogue from three to five degrees, A.B., A.M., B.D., D.D., M.D., etc., including the individual who had had to make his mark.

MASSACHUSETTS.

Milk Dealers Fined.—Ten milk dealers have been fined in the Municipal Court on complaint of the Boston Board of Health.

Want Place for Lepers.—The State Board of Charities is endeavoring to find a place for its leper colony and is now considering the islands of Boston Harbor. Hangman's Island, near Quincy, was proposed, but that city urgently objected. Now Apple Island and Governor's Island or a part of Gallops Island are proposed. On the latter are located the quarantine station's hospitals.

Personal.—After a service of twenty-eight years Dr. Frank W. Draper has resigned as medical examiner of Suffolk County, to take effect June 30.——Dr. George L. West, Newton Center, has been appointed medical examiner of the Seventh Middlesex District in place of Dr. Julian A. Mead of Watertown.——Dr. George H. Francis has been elected a member of the water board of Brookline.

Grenfell's Mission to Labrador Fishermen.—Dr. W. T. Grenfell of the Labrador Deep Sea Mission has been speaking for two or three weeks in or near Boston, endeavoring to secure funds for his hospitals and medical work among the fishermen of the Labrador coast. One outcome of the interest he has aroused will be the company of an expert aurist on his next trip north, all of whose expenses will be met by a leading specialist.

Tuberculosis Hospital Agitation.—A strong effort is being made to induce the legislature to permit the city of Boston to borrow outside of the debt limit, $150,000, to be expended for the purpose of establishing a municipal hospital for tuberculosis. The strongest opposition to this plan seems to center about the hope that the Brigham Hospital, with its $5,000,000 or $6.000,000 endowment may be devoted, largely at least, to this purpose.

Sewerage Expenditures.—The Metropolitan Water and Sewerage Board expended last year on account of waterworks $2,174,498, and for the sewerage department $829,941. Of this last about $250,000 was for maintenance and the rest forms a part of the grand total of $13,666,832, the cost of the sewerage systems. The Charles River will, they think, soon reach its limit of capacity, that is, for 183,000 population. Wachusett reservoir will be ready for use within a year.

Osteopathy Bill Defeated.—The bill to regulate osteopathy, which would have allowed 90 osteopaths now practicing in the state to be registered without examination was defeated in the house. Dr. Frank G. Wheatley, North Abington, who is this year for the second time in the legislature, and who is professor of materia medica and therapeutics at Tufts Medical School, argued most forcibly against the proposed bill.

Alleged Unauthorized Autopsy.—Judgment of $1,000 damages against Dr. Herbert B. Howard, superintendent of the Massachusetts General Hospital, and Dr. Elisha Flagg, formerly connected with that hospital, has been granted in a suit brought on a claim of an autopsy on a boy six years old without the permission of the parents. It is the second suit, the first ending in an award of $50 damages and consequent appeal. The physicians claimed that the undertaker gave permission.

NEW HAMPSHIRE.

New Hospital for Berlin.—The Sisters' Hospital at Berlin is now almost ready to receive patients. It will be dedicated about Easter.

Bequest.—By the will of John J. Pickering, Portsmouth, $45,000 is bequeathed for the erection of a new building for the Cottage Hospital of that city, to be called the Pickering Annex. An additional $5,000 is devised to the hospital.

Kerosene Dangerous Fire Lighter.—Dr. Henry Dodge, Webster, was severely burned while endeavoring to start a fire with kerosene. An explosion followed and the blazing oil set fire to his clothing, but his wife, by intelligent presence of mind. extinguished the blaze.

Legislative Enactments.—The state legislature just adjourned appropriated $50,000 for the purchase of a site for a state sanitarium for consumptives, and for the erection of the building.——A bill regulating the sale of patent and proprietary medicines which contain alcohol or certain specified dangerous drugs was defeated.

NEW JERSEY

Petty Thieving at Camden.—Camden physicians have recently been victims of a petty thief. Dr. Frederick W. Marcy has lost a carriage clock, and Dr. Ernest S. Ramsdell an overcoat.

Protests Filed.—Strong protests have been filed with the legislature against the enactment of a law establishing a state board of examiners for osteopaths, by the physicians throughout the state.

Personal.—Dr. Edwin Tomlinson is seriously ill at his home in Gloucester City, N. J.——Dr. Frank W. Lockwood, East Orange, has been elected secretary of the local board of health. ——Drs. Willis C. Noble, William H. Areson, James T. Hanan and Stella S. Bradford have been appointed medical inspectors for the Montclair schools.——Dr. Charles A. Limeburner, visiting physician at the City Hospital, Jersey City, has resigned.

NEW YORK.

Site for New State Hospital.—The assembly practically endorsed the selection of the Baker farm in Washington County as the site for the proposed new hospital.

Personal.—Dr. Julius Ullman has been appointed special examiner for patients suffering from tuberculosis who desire admission to the State Hospital for Incipient Tuberculosis at Ray Brook.

Officers Elected.—Erie County Medical Association has elected officers as follows: President, Dr. Arthur Bennett; vice-president, Dr. Grover Wendt; secretary, Dr. David E. Wheeler, and treasurer, Dr. Adolph H. Urban.

Elsberg Bill Advanced.—This bill, abolishing the office of coroner in New York City, was advanced to a third reading in the senate, but was recommitted for a hearing before the state cities committee. It is understood that an endeavor will be made to effect a compromise by which Brooklyn will be enabled to keep her coroners.

Oppose Osteopathy Bill.—Dr. E. Eliot Harris, chairman of the committee on legislation of the New York State Medical Association, had sent a personal letter to the members of the profession enclosing a circular giving the reasons why the bill entitled "An Act Regulating the Practice of Osteopathy in the State of New York," should be defeated. He requested to this end that each physician should write a personal letter in opposition to the bill to the senator and to the assemblyman representing his district in the legislature.

New Water Supply Bill.—A new Apgar bill is now before the legislature which seeks to send New York City to Lake Erie or to Lake Ontario for its water, and incidentally, through the state commission created by the bill, to supply the various communities lying along the line of the proposed metropolitan aqueduct. The advocates of this bill hold that if the cities and villages of this state were supplied from the Great Lakes it would result in a tremendous decrease in the death rate, as even the best local supplies are liable to become contaminated.

Against Pure Drug Bill.—The pharmacists who appeared before the senate committee of public health opposed the Grady pure drug bill on the ground that the effect of the whole measure was to protect foreign patented articles, which sold here at prices several hundred per cent. higher than they brought at home. This bill is modeled almost word for word after the Heyburn bill recently before congress. It is urged that, as it provides that no article shall be labeled with the name of a foreign product when not of foreign origin, it would prevent our druggists from selling many well-known medical drugs under the names by which the public know them.

January Disease and Death.—The monthly bulletin of the State Department of Health for January shows 11,875 deaths, corresponding to an annual death rate of 18.5 per 1,000. Of these 2,200 were reported for the rural towns not separately specified in the bulletin, which is a decrease of 200 from that of last January, but is the same as that for December last. There is a decrease in diphtheria, an increase in pertussis and a material increase in consumption and pneumonia. The five large cities show an increase over the December mortality, about the same relatively as the rural towns. For the state there are 400 more deaths than in December, and there is the same increase above the average mortality of the month. Pneumonia leads the important causes of death, with 1,800 deaths, which is more than occurred in January last; consumption caused 1,166, or about the same as in two months under comparison, and nephritis 780. Cerebrospinal meningitis caused 150 deaths, most cases occurring in New York City, where it is epidemic. Typhoid fever caused 100 deaths, which is 50 less than the average for several years in January. Measles and scarlet fever have a moderate mortality, and are not prevalent to any material extent in the state, with exception of Buffalo, where measles has been epidemic. Pertussis caused 45 deaths: diphtheria 260, which is a decrease from the average, and there were 175 deaths from influenza reported from outside New York City and Buffalo. There has been no mortality from smallpox.

New York City.

Skim Milk Tabooed.—No skim milk can be sold in this city by permission of the Health Department. and the greatest caution will be exercised to see that none is used for purposes of adulteration.

Aid for Bellevue.—The board of estimate has granted $850,000 for the extension of the hospital building and for its equipment. Special attention will be given to consumptive patients in the new building, where there is but slight accommodation. It will take about ten years to complete the extensions planned, which will provide for 2.800 patients.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending March 11, 480 cases of tuberculosis. with 183 deaths; 296 cases of diphtheria, with 26 deaths; 349 cases of measles, with 10 deaths; 270 cases of scarlet fever, with 19 deaths; 30 cases of typhoid fever, with 9 deaths; 159 cases of chickenpox, 1 case of smallpox and 76 deaths from cerebrospinal meningitis.

Cerebrospinal Meningitis.—The epidemic of this disease continues to excite alarm. A number of cases have broken out in West Twelfth Street, where four cases have been reported from one family. The number of cases in this vicinity is attributed to the bad condition of the streets. The Health Department has received $5,000 from the board of estimate and apportionment with which to investigate this disease. The members of the commission to be appointed for this work are: William M. Polk, Walter B. James, William P. Northrup, Simon Flexner, Joshua M. Van Cott, E. K. Dunham, and William K. Draper.

Work of County Medical Society.—Camille Francois was arrested on the charge of violating the medical laws in a hairdressing establishment.——Dr. John W. Pirillo is held on the charge of having signed a death certificate for an unlicensed practitioner of medicine.——Reuben N. Mayfield has been arraigned and held for trial on $2,500 bail charged with practicing medicine unlawfully. He stated that he was associated with Dr. Samuel D. Koch and was entitled to the letter heads "Dr. Koch's Sanitarium." Another letter said to have been used as an advertisement purported to have come from Dr. Robert Koch.

Society of Medical Inspectors of the Health Department.—This society was organized at a meeting of the medical inspectors of the Health Department, held March 3. The object of the society is the study and discussion of problems in hygiene and public health, and the promotion of good-fellowship among the members. Monthly meetings will be held, at which scientific papers will be read and discussed, and addresses delivered by invited superior officers of the department and other sanitarians and public officials. Dr. Edward M. Thompson, chairman of the committee on organization, presided at the meeting; a constitution was adopted and the following officers were elected: President, Dr. Augustine C. McGuire; vice-president, Dr. Otto John; secretary, Dr. Edward M. Thompson; treasurer, Dr. Leopold Marcus; executive committee, Drs. Joseph Baum, Helen Knight, Samuel A. Buchenholtz, Thomas A. Neafsey and George DeSantos Saxe.

OHIO.

Conditional Gift.—It is announced that John D. Rockefeller has given $25,000 to the Women's and Children's Free Hospital, Cleveland, conditional on the raising of a like amount by the institution.

Must Conform to Medical Law.—The Supreme Court of the state has decided that so-called "Christian Science" treatment comes within the scope of the medical laws of the state and that the eddyist who attends the sick must conform to the laws governing the practice of medicine.

Personal.—Dr. Perry R. Brubaker, Bucyrus, will locate for practice in the Philippine Islands.——Dr. Sigmar Stark, Cincinnati, was in a serious runaway accident, March 8, but escaped with only a few scratches and bruises.——Dr. Gustavus A. Doren, Columbus, is seriously ill with heart disease.

In Trouble.—Dr. John Hutchfield, Columbus, was found guilty of attempting to suborn a witness, and was sentenced to thirty days' imprisonment in the county jail, and fined $100 and costs.——"Dr." J. A. Taff, who has been practicing medicine in Ohio without a license, plead guilty to the charge, at Uhrichsville, March 1, and was fined $40 and costs.

Left to Wrong Hospital.—It is claimed that the bequest of $9,000 to St. Elizabeth's Hospital, Dayton, from the estate of the late Philip Eckl, was intended for the Miami Valley Hospital. As the deceased was a devout Lutheran, it would seem unlikely that he should bequeath money to a Roman Catholic institution. The matter will be setled in the courts.

OREGON.

Useless Health Offices Abolished.—The legislature has passed a bill abolishing state health offices for Oregon ports at Astoria, Umpqua, Yequina and Coos Bay.

Sanatorium Open.—It is announced that the Heppner Sanatorium is now ready to receive patients. The staff is composed of Drs. Archie K. Higgs, Frank B. Kistner and Winnard of Heppner, and Drs. Alexander Reid and Bruce of Ione.

Low Death Rate.—During 1904, Portland had 1,351 deaths, equivalent to an annual death rate of 9.01 per 1,000. Of the decedents 801 were male and 550 female; 1,284 white, and 67 colored. Tuberculosis caused directly [illegible] deaths, and indirectly, more than 200.

Cancer Specialist Ousted.—The State Board of Medical Examiners has scored a victory in their fight against J. L. Bohannon, a cancer specialist of Portland, who has been practicing without a license. Rather than stand trial, the irregular compromised the case, repaying the patient $50 collected; paying a fine of $50, and agreeing to leave the state.

PENNSYLVANIA.

Sanatorium Burns.—Highland Inn, a sanatorium at Dallas, was burned to the ground, March 13, at a loss of $35,000, but without loss of life or injury to the inmates.

Ill and Injured.—Dr. August J. Kornak, Braddock, who has been in grave danger for several weeks because of septicemia from an operation wound, was discharged from Mercy Hospital, Pittsburg, March 1.——Dr. Charles B. Noecker, Scranton, was operated on for appendicitis, March 12, and is making good progress toward recovery.

Hospitals Benefit.—By the will of the late Charles Lockhart, Pittsburg, $40,000 is bequeathed to the Western Pennsylvania Hospital; $20,000 to Passavant Hospital; $20.000 to Allegheny General Hospital, and $15,000 to the United Presbyterian Memorial Hospital for Women and Children.——By the will of the late Benjamin F. Dilley, Wilkesbarre, $5,000 is devised to Mercy Hospital in that city.

Money to Fight Tuberculosis.—Two bills to establish state hospitals for the treatment of incipient tuberculosis were passed by the house of representatives, March 14. They appropriate $200,000 for each institution, one of which is to be located in the state forestry reservation at Mont Alto, Franklin County, and the other in Western Pennsylvania. They are to be strictly state institutions and under absolute control of the state forestry commissioner.

Personal.—Dr. Walter S. Stewart, Wilkesbarre, has been commissioned surgeon, with rank of major, and assigned to the Ninth Infantry; Dr. George L. Hays, Pittsburg, major and surgeon, and assigned to the Fourteenth Infantry, and Dr. William G. Weaver, Wilkesbarre, captain and assistant surgeon, and assigned to the Ninth Infantry.——Dr. Henry J. Sommer, Jr., Norristown, has been elected pathologist to the State Hospital for the Insane.——Dr. John Fay, Altoona, on the occasion of his semi-centennial of practice, was given an informal reception at the Altoona Hospital, March 10.——Dr. William Herbst of Trexlertown celebrated his fiftieth anniversary in the practice of medicine March 12.

Cattle Vaccinated Against Tuberculosis.—At the recent meeting of the Pennsylvania State Veterinary Association, held in Philadelphia, Dr. Leonard Pearson of the University of Pennsylvania reported on some work he has done in conjunction with Dr. S. H. Gilliland on the vaccination of cattle against tuberculosis. Experiments on this subject have been carried on for nearly two years under the auspices of the State Live Stock Sanitary Board. The cattle under experimentation are on a farm in Delaware County. Dr. Pearson showed that animals may be vaccinated in such a way as to protect them against this disease. He is directing his efforts now toward simplifying the method of vaccination, so that it may be applied on a large scale to cattle on farms, with as little cost as possible.

Philadelphia.

Personal.—Dr. Henry C. Chapman, professor of physiology and medical jurisprudence in Jefferson Medical College, has left for Europe.

New Nurses' Home.—The new nurses' home of the Women's Hospital of Philadelphia was dedicated with appropriate ceremonies on Wednesday, March 15. The building has just been completed at a cost of $20,000.

An Ophthalmologic Week.—A special week in diseases of the eye will be held at the Philadelphia Polyclinic from April 3 to 8, during which special efforts will be made to present an interesting series of lectures, demonstrations, operative cases, etc.

Sanitary Trolley Cars.—For the betterment of the sanitary conditions of the trolley cars, all cars of the Philadelphia Rapid Transit Company in the future will be equipped with cane-covered seats, instead of carpet and plush-covered seats as at present. This change is being made at the request of the officials of the local board of health.

Hospital Dedicated.—The Mount Sinai Hospital, located in the Hebrew section of the city, was dedicated with appropriate exercises, March 12. The building is a four-story brick structure and thoroughly equipped. The first floor contains the offices, prescription department and dispensaries. The second floor contains two large and three small wards. The operating and physicians' rooms are located on the third floor, and the fourth floor contains the children's wards, nurses' rooms and kitchen.

Health Report.—The deaths from all cases recorded during the week aggregated 599. Among the principal causes of death were typhoid fever, 19; scarlet fever, 2; diphtheria, 10; influenza, 5; cerebrospinal meningitis, 2; tuberculosis of lungs, 68; cancer, 18; heart disease, 61; acute bronchitis, 12; pneumonia, 75; Bright's disease, 37, and suicide, 3. The number of cases of contagious disease reported was 356, with 32 deaths, as compared with 272 cases and 24 deaths from last week, showing an increase of 84 cases and an increase of 8 deaths for the week. There were 274 new cases of typhoid fever reported, with 19 deaths, as compared with 178 cases and 12 deaths for the preceding week.

Changes in Staff.—The following appointments have been made at the Philadelphia General Hospital: Dr. Joseph Sailer, visiting physician; Drs. William Pickett and Daniel J. McCarthy, visiting neurologists; Dr. J. H. McKee, visiting pediatrist; Drs. Hilary M. Christian, E. Hollingsworth Siter, and Henry Tucker, visiting genitourinary surgeons; Dr. G. Paul

La Roque, assistant surgeon; Drs. Courtlandt Y. White, John W. Hunter, and George Norris, assistant physicians; Dr. Charles C. Norris, assistant obstetrician; Dr. Samuel McClarg, assistant neurologist; Dr. Howard Childs Carpenter, assistant pediatrist; Drs. Charles A. Hatfield, T. Y. Ullom, J. W. Irwine, and J. Hamilton Small, assistant physicians, department for tuberculosis; Drs. Macy Brooks, Alexander Uhle, and Howard Dahoney, assistant genitourinary surgeons; Dr. H. R. Alburger, assistant anesthetist, and Drs. Thomas B. Holloway and Ward Brinton, registrars.

Meningitis Here.—Two deaths from a fulminant type of cerebrospinal meningitis have occurred in the city during the past week, and another hopeless case was also reported March 17. Every effort is being made by the health authorities to prevent the spread of this highly malignant disease, and it is stated that the health department will ask for an appropriation of $5,000 to $10,000 to make special investigations regarding the malady. The last victim attacked by the disease was a small child in the southern part of the city, and the school which he attended has been closed and subjected to fumigation. The home of the child has been placed under rigid quarantine. The health authorities say that in the future all houses where this disease exists will be placarded with yellow contagious signs. It will be fought along the same lines as smallpox, and, if anything, with even more vigor. Cerebrospinal meningitis has been prevalent in this city on several occasions; in 1899 there were 146 cases recorded; 20 of these were treated in the Municipal Hospital. In 1863, and again in 1865 the city was also visited by a slight epidemic of the disease. According to Pepper 2,575 cases of cerebrospinal meningitis were reported in this city between 1863 and 1891.

UTAH.

Correction.—The name of Dr. C. C. Snyder was omitted from the list of the staff of the Dr. W. H. Groves Latter-day Saints Hospital, Salt Lake City, which appeared in The Journal of March 4.

University to Have Pre-Medical Department.—It is announced that a pre-medical department is to be added to the University of Utah. It will be under the direction of Dr. Ralph V. Chamberlain, and will fit its students for the junior year in medical college.

Physician Wins Suit.—Dr. Joseph A. Richards, Salt Lake City, was granted a non-suit in the damage case brought against him by Mary Morris, who claimed malpractice in the improper setting of a broken ankle, and desired to recover $5,000 damages therefor.

WASHINGTON.

New Hospital Open.—The new Providence Hospital, Everett, was opened for the reception of patients, March 1.

County Medical Society Election.—At the annual meeting of the Pierce County Medical Society, held recently in Tacoma, the following officers were elected: President, Dr. Grant S. Hicks; vice-president, Dr. Leon L. Love; secretary and treasurer, Dr. A. DeY. Green, and censors, Drs. Thomas B. Curran, George H. McGeer and George D. Shaver, all of Tacoma.

Personal.—Dr. William C. Gibson, Seattle, sailed for Europe, March 21.——Drs. Charles P. Thomas, William H. Olds, Arthur R. Cunningham, A. A. Matthews, Charles E. Grove and S. B. Hopkins were elected to the staff of St. Luke's Hospital, Spokane.——Dr. Euclid Van Zandt, Bellingham, has been made acting superintendent of the Western Washington Hospital for the Insane, Fort Stellacoons, vice Dr. Alexander H. McLeish, resigned.

WEST VIRGINIA.

Seven Physicians in Legislature.—There are at present seven practicing physicians who are members of the state legislature.

Personal.—Dr. Cassius H. Ice, Mannington, has resigned as a member of the Marion County Board of Health, and has been succeeded by Dr. I. W. Beaty.——Dr. Addison K. Ross, Parkersburg, has been appointed physician of Wood County.

Annual Election.—At the annual meeting of the Cabell County Medical Society at Huntington, the following officers were elected: Dr. Corydon R. Enslow, president; Dr. J. E. Rader, vice-president; Dr. Thomas W. Moore, secretary; Dr. Isaac R. Le Sage, treasurer, and Drs. Charles T. Taylor, Edward S. Buffington and Harry C. Solter, censors, all of Huntington.

GENERAL.

Dinner to Dr. Osler.—Previous to his departure for England, to assume the chair of medicine in the University of Oxford, a dinner will be given to Dr. William Osler at the Waldorf-Astoria, in New York City, at 7:30 p. m., May 2. Dr. J. P. Crozer Griffith, 1810 Spruce street, Philadelphia, is in charge of subscriptions.

Yellow Fever in Panama.—In the *Public Health Reports* is printed the following official summary of yellow fever cases on the Isthmus: Total number of cases on the Isthmus of Panama from July 1, 1904, to Feb. 1, 1905, 31; deaths, 10. Total number of cases from Feb. 1, 1905, to Feb. 25, 1905, 10; deaths, 4. Total, 41 cases; 14 deaths.

CANADA.

Alexandra Hospital Being Built.—The new English hospital for contagious diseases in Montreal is to be called the Alexandra Hospital. It will occupy a block of land whose frontage and two sides will be 500, 300 and 450 feet, respectively. In the group of buildings there are to be nine separate ones, and there will be seven buildings constituting the hospital proper. Each pavilion is to have its own nursing staff and each will be entirely isolated.

Bishop's to Amalgamate with McGill.—At a recent meeting of the medical faculty of Bishop's College University, Montreal, it was unanimously decided to amalgamate with the medical faculty of McGill University. The present term will be completed at Bishop's, and the most generous terms will be granted the faculty of Bishop's, as well as her students. All of the staff at Bishop's will be granted associate positions on the teaching staff of McGill.

Canadian Association for the Prevention of Tuberculosis.—The fifth annual meeting of this society was held in Ottawa on March 15. A large number of medical men were present from all over the Dominion. The association decided to ask the federal government to appoint a royal commission to deal with the entire question of tuberculosis as it affects the Dominion of Canada. At the evening meeting, at which the governor-general presided, Professor J. George Adami delivered an address on "Adaptation and Consumption." Senator Edwards was re-elected president, and the Rev. Dr. Moore, Ottawa, was re-elected secretary.

New Brunswick Insane Hospital Report.—To the New Brunswick Hospital for the Insane, during the past year. 141 new patients were admitted, 80 of whom were men and 61 women. During the year 41 men and 39 women were discharged, while 42 men and 32 women died in the institution, leaving 290 men and 264 women in the institution at the end of the regular hospital year, Oct. 31, 1904. Of those discharged 34 men and 30 women were considered cured; 3 were improved and 3 were unimproved. Of the 141 admitted to the hospital, 117 were admitted for the first time, and the majority of those admitted had passed middle life. The report also states that of the 716 cared for during the year, all but 100 were cared for by the province.

Winnipeg Hospital Report.—During the year 1904 the Winnipeg General Hospital cared for 3,868 patients in its wards, as compared with 2,928 in 1902 and 3,354 in 1903. The total receipts amounted to $168,629.06 and the expenditure was $175,636.63. Of the total number treated during the year, 271 died, a mortality of 7.06 per cent. The total number of typhoid fever patients treated was 728. Of these 180 were admitted in October and 166 in September. Between October 1 and December 15 there were never less than 148 cases in the wards. The number of patients in the wards on Jan. 1, 1904, was 151; the number of births was 141; the greatest number of patients on any one day was 287. In the outdoor departments there were 4,772 consultations.

FOREIGN.

International Association of the Medical Press.—The conference of the delegates of the International Association of the Medical Press will be held this year at Berne, April 27. The president of the association is Cortezo of Madrid, editor of the *Siglo Medico*.

French Congress of Alienists and Neurologists.—The fifteenth congress will be held at Rennes, August 1 to 7, 1905. The questions appointed for discussion are "Hypochondria," "Ascending Neuritis" and "Balneotherapy and Hydrotherapy in the Treatment of Mental Affections."

Medical Study Trip to German Spas.—The annual study trip for physicians and their families is announced to start from Munich September 13. After a trip through a number of watering places, the party arrives at Meran and disbands the same day that the Naturforscher Congress assembles there. Among the spas to be visited are Ischl, Gastein, Levico, Roncegno and Arco.

Contract Practice in France.—The medical officers of a sick benefit society at Granville, France, insist on being paid 30 cents a visit instead of the previous rates of 20 cents. The physicians have published a statement, explaining that the sick benefit society is largely made up of members who are abundantly able to pay for individual private attendance, and that the society is a comparatively wealthy one, well able to afford the increased rate.

Right to Oppose Disinfection of House.—A resident of Rio de Janeiro refused to allow the disinfection of his house after a case of yellow fever therein. He appealed to the courts to protect him against the officers of the public health service who insisted on the legal compulsory disinfection. The *Semaine Médicale* states that the courts sustained him in his contention, and decided that a house can not be disinfected without the consent of the resident.

Celebration of the Semicentennial of the Laryngoscope.—Scientific societies—medical and musical—and royalty vied with one another in presenting homage to the centenarian, Manuel Garcia, March 17, at London, the remarkable occasion being his hundredth birthday and at the same time the semicentennial of his invention of the laryngoscope. He is a native Spaniard, long resident in London, and as a professor of vocal music he was the first to demonstrate the larynx in the living subject. His communication on the subject was presented to the Royal Society of London in 1855. A committee was formed a year or so ago to arrange for the suitable celebration of the anniversary, as was mentioned in The Journal. A portrait was presented to him, painted by Sargent, and the day closed with a banquet at the Hotel Cecil. Numerous delegations from scientific, medical and musical societies of Europe and America were present, with representatives of the kings of England and Spain and the emperor of Germany, and a large gathering of notables. Sir Felix Semon proposed Signor Garcia's health, whom he addressed as "my great and revered master." He commented on the remarkable fact that two professions which had so few points in contact—medicine and music—should meet to do homage to this great centenarian. It is also remarkable that Garcia still retains his physical and mental faculties when we know that he retired from the operatic stage in 1829 because his physique was not equal to the strain. During his brief career as an opera tenor he came to this country as a member of the first Italian opera company that ever visited our shores. He invented the laryngoscope to aid him in his teaching of vocal music, to study the behavior of the vocal cords during the act of singing. Its importance for the diagnosis of disease was not recognized at first, as it was supposed that only trained muscles were able to allow the view of the throat, but Garcia's writings inspired the physicians Türck of Vienna and Czermak of Pesth to experiment further and perfect the technic of laryngoscopy. Their strife for priority, two or three years after Garcia's discovery, spread the knowledge of the new art through the medical world.

LONDON LETTER.

The Vitality of the Typhoid Bacillus in Shellfish.

The numerous outbreaks of typhoid fever in England due to sewage-contaminated oysters have been reported in The Journal, and the fact pointed out that the whole estuary of the Thames was so polluted by sewage that shellfish taken from it were not safe to use as food. This gave rise to the "oyster scare" in London, which, for a time, crippled the trade in that shellfish. Actuated, no doubt, by a motive which is easily comprehensible, though in no way discreditable, the Fishmongers' Company of London requested Professor Klein to conduct experiments in order to ascertain the vitality of the typhoid bacillus in oysters and other shellfish. The results so far obtained have just been published as a preliminary report. About 160,000,000 typhoid bacilli were introduced into the interior of the shells of oysters. Half of the number were placed in clean sea-water, which was changed ever twenty-four hours; the others were kept dry in a cool chamber. The number of bacilli present was then estimated from day to day. Other experiments were performed, such as placing oysters in sea water containing a culture of the typhoid bacillus. Similar experiments were performed with cockles and mussels. Professor Klein drew the following conclusions: 1. Oysters readily take up into their interior the typhoid bacillus introduced into their shell or into the surrounding sea water. 2. Oysters clean at starting rapidly clear themselves of the ingested bacilli if kept in clean sea water which is frequently changed. 3. They clear themselves to a less extent and more slowly if kept out of the sea water. 4. Oysters from a polluted locality clear themselves of the ingested typhoid bacillus to a less extent and at a slower rate, even if kept in clean sea water, than oysters clean at starting. 5. Oysters from a polluted locality retain the bacillus to a larger extent if kept out of water. 6. The process of clearing themselves of the bacillus can not be owing to the oyster merely passing out the bacillus, but must be largely due to devitalizing the microbe. 7. Oysters from a polluted locality containing a large number of the colon bacilli rapidly clear themselves, whether kept in or out of water. This shows that the bacillus coli is foreign to the oyster, and is rapidly destroyed by it. 8. However largely infected with the typhoid bacillus, the oysters present no sign to the eye of such infection. 9. Cockles readily embody the typhoid bacillus present in sea water. The number in the body of the cockle increased for five days after the cockles had been removed from the infected water and kept in clean sand. They subsequently slowly diminished. 10. Mussels embody the typhoid bacillus to a greater extent than oysters or cockles. The number diminishes gradually—more slowly than in oysters but more quickly than in cockles.

Correspondence.

Medical Missionary Association of China.

St. John's College, Shanghai, China, Feb. 14, 1905.

To the Editor:—The Medical Missionary Association of China held its annual meeting in Shanghai. Forty-two physicians were present, representing eight of the eighteen provinces, Manchuria and Formosa. The most important subject discussed was the instruction of the Chinese in scientific medicine and the means by which this is to be accomplished. The association put itself on record as favoring the establishment of medical schools in the important centers throughout the empire. Steps have also been taken to provide up-to-date text-books in the Chinese language. For some years the association has had a committee on medical nomenclature. In 1902 this committee published a vocabulary of terms used in anatomy, histology, physiology, pharmacology and pharmacy; and in 1904 an additional list of terms in pathology, medicine, surgery, obstetrics and gynecology was published. There is also being prepared a list of terms in materia medica and bacteriology. The association is unanimously in favor of appointing a translating and publishing committee to see what new books are needed and what old books require revising, to find translators or editors, and to consider proposals by members of the association to undertake the translation of particular works.

The association is to own and control these books so that they shall form a consistent series. The expense of the cuts used and the printing will make the initial cost considerable, but it is estimated that after the first editions are exhausted they will yield a profit. The profit will be used to issue new books.

When practicable, it is proposed to issue a medical journal in Chinese in order to enable students to keep in touch with the advances in medical science in foreign lands. The benefit of this work in the thorough training of students and in the alleviation of the suffering of countless Chinese will be widespread. A balance of $400 (Mexican) is in hand for this work and over $400 more was subscribed by the physicians present.

It is to be hoped that many who are interested in the higher education of the Chinese and the relief of suffering humanity will aid financially in the establishment of this work.

Yours sincerely,
C. S. F. Lincoln, A.B., M.D.,
Secretary and Treasurer Medical Missionary
Association of China.

Pharmacology.

[The above title has been selected for this new department because it appears the best one to define its purpose and scope. While the use of the term pharmacology has been confined by some authors to the action of drugs, academically called pharmacodynamics, considered etymologically it is the broadest and most comprehensive term that can be applied to the science of drugs. This is also the original application of the term by German and French authorities, such as Husemann and Littrè respectively, who define pharmacology as comprising practically all the sciences of material medicinal agents, viz., materia medica, pharmacodynamics, pharmacy, pharmaceutic chemistry and pharmaco-therapeutics, or of drug-therapy as distinguished from other agents used in the treatment of disease. The title also has been adopted for that section of the American Medical Association formerly called the Section on Materia Medica, Pharmacy and Therapeutics. It seems to represent all the different phases of the question to be considered better than any other title suggesting itself. Under this heading we propose to publish matter of interest on the broad subject of pharmacology as included in this definition.]

EXPRESSIONS ON THE ANNOUNCEMENT.

Comments on the Plan of Work as Temporarily Outlined by the Council on Pharmacy and Chemistry.

A large number of replies to the preliminary announcement have been received by the Council on Pharmacy and Chemistry. We make quotations from a few:

E. R. Squibb & Sons: Although we fully appreciate the great difficulties that the council will experience in the carrying out of its appointed task, we unhesitatingly place ourselves on record as most heartily in accord with the program of work announced. The men composing the council are sufficient guarantee to us that their struggle with the problems before them will be carried on with intelligent regard for the various legitimate interests involved, and with a grim determination to reach practical results. Their labors surely will be an effort in the right direction, for safe and honest service against unsafe or dishonest practices. We shall at all times be happy to co-operate with the council to the fullest extent of our power.

Merck & Co.: You may be assured that we shall be very happy to co-operate with the council in its labors and to supply a list of our articles, and all the information regarding them that you may desire. It has always been our endeavor to work in harmony with the medical profession of the country, as represented by your esteemed Association, and, therefore, in following the rules adopted by your council governing the admission of articles to the book, "New and Non-Official Remedies," we shall only be following our established practice.

Farbenfabriken of Elberfeld Co.: We send to-day a package by express containing samples of all our products. The labels on the various packages contain all the information regarding patents and trademarks required by your council. We have already begun to comply with the resolutions adopted by the Section on Pharmacology, which requests manufacturers to put on the packages not only the trademark name, but also the chemical designations of the preparations. . . . . We congratulate your council on the initiation of this important work, and hope that it will promote the interests of ethical medicine and pharmacy.

Searle & Hereth Co.: We do not hesitate to state that we approve very heartily of the movement. The ends you are striving for are very desirable, indeed, and it is our desire to co-operate with you as far as we can consistently.

Rufus Crowell & Co., Somerville, Mass.: I feel that it is the most important step taken in recent years in this country, as it holds out at least a ray of hope to the manufacturers who are trying to conduct an honest and ethical business. If there is anything that we can do to help further the idea, I shall only be too glad to help, and I hope that the outcome of it will be a national bureau or one under the Council on Pharmacy and Chemistry, by which a new drug can be examined, where nothing but an ethical article will be recognized, and where a medicine that is really an advance in therapeutics may receive a cachet entitling it to recognition from the profession. Do not hesitate to ask for any assistance that I can give you.

Fritzsche Brothers:. We are heartily in accord with any and every movement which aims at the separation of the wheat from the chaff, and, indeed, believe that with the issue of the book as proposed a pioneer and systematic step has been taken in the right direction. Desultory writings tending toward reformatory movements serve well as an initiatory purpose, but fall short of ultimately obtaining its object. To accomplish this a systematic hammering is required and, fathered and fostered as this movement is by the A. M. A., it will make success a surety, and in the end rid the medical profession as well as that of pharmacy and in turn therapy of the nondescripts.

Victor Koechl & Co.: We will be glad to co-operate with you in so far as the products that we control are concerned, and will give you all the information necessary to carry out your plan. . . . You have undertaken quite a contract, but, if it is carried out on the lines suggested, your work will be of invaluable service to the physician.

Gardner-Barada Chemical Co.: Everything contained in the announcement and circular is unqualifiedly and absolutely indorsed. Every rule is conducive to good, and not one of these rules, even in its strictest interpretation, will harm any honest manufacturer. Our labels, etc., will be ordered to be changed as fast as the presses can print them.

The White Co.: We will do anything you may wish in connection with this movement. The members of this concern are entirely in sympathy with you, and will give you any information we have at hand. We are very glad to notice Rule No. 1, and think it is very much to the benefit of the profession that this rule is carried out to the fullest extent.

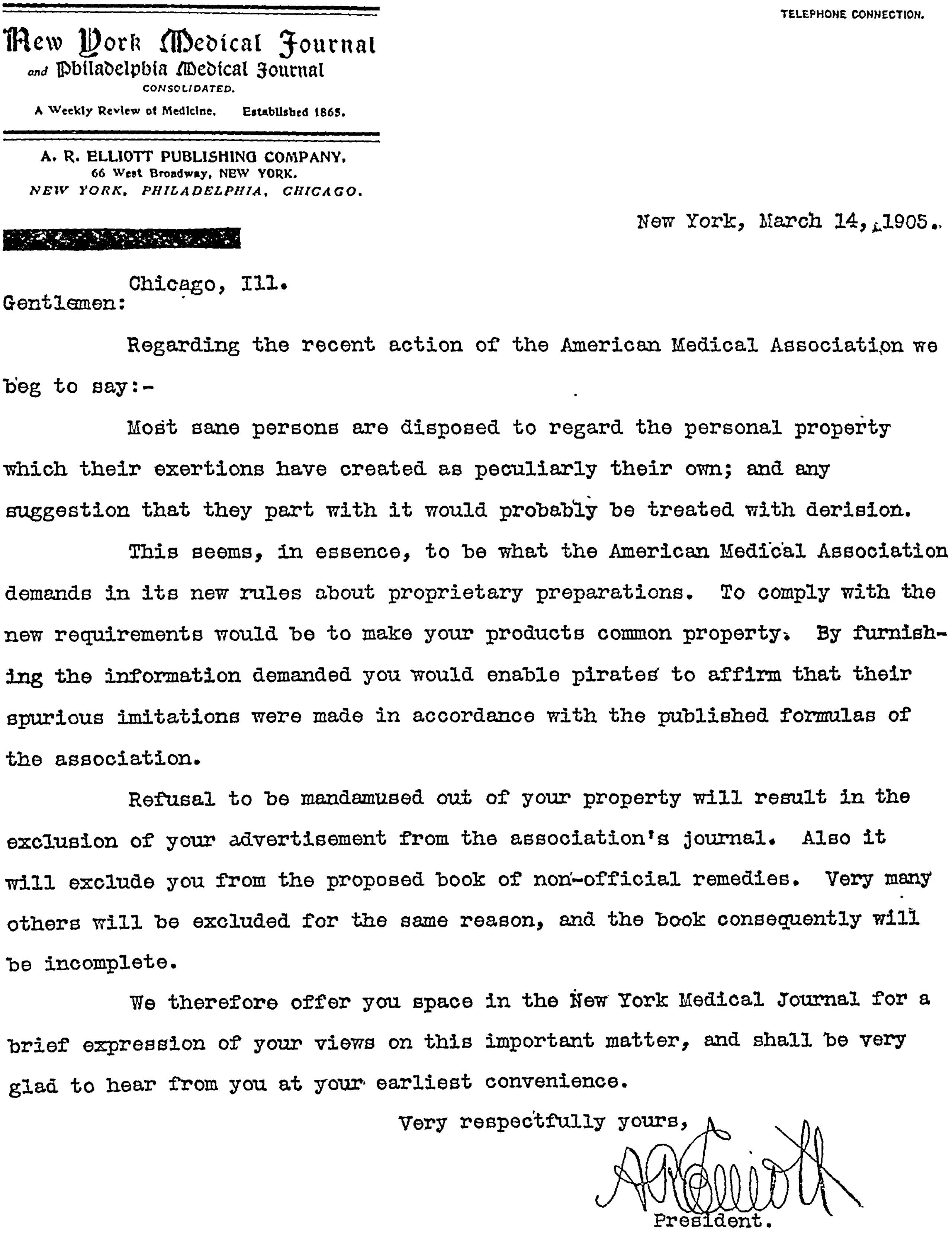
The Organic Chemical Mfg. Co.: The establishment of this Council on Pharmacy and Chemistry of the American Medical Association will be a bulwark for the protection of the good name of the American manufacturer, be he ever so poor. It will establish confidence in American-made remedies that have been "honestly made, ethically exploited and worthy of patronage by intelligent physicians."

The American Ferment Co.: The work undertaken by the Council of Pharmacy and Chemistry of the American Medical Association must meet with the hearty approval of all worthy manufacturers, as it recognizes merit and the right of the manufacturer of really valuable products to protect himself, and to secure at least a part of the benefits derived from such work; while at the same time recognizing the right of the medical profession to be protected against many worthless and absurd products.

Frederick Stearns & Co.: We desire to express our hearty sympathy with the purposes of the Council on Pharmacy and Chemistry of the American Medical Association as outlined in the circular accompanying your letter, for we believe that much good will result from the action thus taken if manufacturers comply promptly and cheerfully with these requests for information about their products. The history of our house since it was established fifty years ago shows that we have always contended against secrecy in medicine and we should certainly have to regard ourselves as recreant to our principles if we did not give our support to this movement. Accordingly, therefore, we have prepared and submit herewith statements regarding those of our products that are more or less proprietary and that are prescribed by physicians, giving the information asked for by the council as we understand it. If, however, this information is insufficient in any respect, we are ready to supplement it as may be necessary.

A DEFENDER OF SECRET NOSTRUMS.

Last week we were favored by several manufacturing pharmacists with a copy of a letter they had received from the owners of the *New York Medical Journal*. The letter was practically the same in each instance, and evidently was sent to a large number of advertisers (but not to physicians, however, so far as we know). The letter is so unique that we



TELEPHONE CONNECTION.

New York Medical Journal
and Philadelphia Medical Journal
CONSOLIDATED.
A Weekly Review of Medicine. Established 1865.

A. R. ELLIOTT PUBLISHING COMPANY,
66 West Broadway, NEW YORK.
NEW YORK, PHILADELPHIA, CHICAGO.

New York, March 14, 1905.

[redacted]
Chicago, Ill.

Gentlemen:

Regarding the recent action of the American Medical Association we beg to say:-

Most sane persons are disposed to regard the personal property which their exertions have created as peculiarly their own; and any suggestion that they part with it would probably be treated with derision.

This seems, in essence, to be what the American Medical Association demands in its new rules about proprietary preparations. To comply with the new requirements would be to make your products common property. By furnishing the information demanded you would enable pirates to affirm that their spurious imitations were made in accordance with the published formulas of the association.

Refusal to be mandamused out of your property will result in the exclusion of your advertisement from the association's journal. Also it will exclude you from the proposed book of non-official remedies. Very many others will be excluded for the same reason, and the book consequently will be incomplete.

We therefore offer you space in the New York Medical Journal for a brief expression of your views on this important matter, and shall be very glad to hear from you at your earliest convenience.

Very respectfully yours,

A R Elliott
President.

(EXHIBIT A.)

reproduce it (Exhibit A)—not because there is any criticism on a journal asking for opinions of manufacturing pharmacists (for we publish above some opinions which the council itself solicited) but because the owners and not the editor ask for the opinions and because of the suggestions made as to the kind of opinions wanted. It is very much to the point that this letter was sent by the owners and not by the editor of a journal that is presumed to be published in the interest of physicians. Just why the editor's function was usurped by the owners of the journal we can not understand, but we can readily appreciate why the advertiser's side of the question was recognized as the more important, when we realize that the owners are primarily advertising agents and publish a medical journal as a side line. As evidence of their status we reproduce the letterhead of the firm (Exhibit B). As a further reason for the *pro tempore* editors siding with the advertisers, it should be known that they also own a drug journal, which at one time was recognized as a high-class pharmaceutical publication. Under the present management, however, it has developed a decided leaning toward patent medicine and the Proprietors' Association, and is not pointed out as an exponent of the highest ideals in pharmacy. Furthermore, the owners, as far as we know, do not claim to be pharmacists, and we never heard that they posed as physicians; consequently when they assume to edit a medical journal they are not to blame if they do not see either the scientific pharmacist's side of the question, or the physician's. Then, again, there is more money in a journal with a small circulation and with a large advertising patronage than the reverse, and in such cases it may pay from a financial standpoint to cater to the advertisers. Therefore, taking it all in all, it can be readily understood why the temporary editors

Advertising is to Business what Steam is to Machinery—The Great Propelling Power.—*Lord Macaulay.*

A. R. Elliott—Advertising

Leading Dailies a Specialty,

RELIGIOUS WEEKLIES, TRADE JOURNALS, COUNTRY WEEKLIES,
MEDICAL JOURNALS, ILLUSTRATED PAPERS, JUVENILE PUBLICATIONS,
FASHION PUBLICATIONS, AGRICULTURAL JOURNALS, FOREIGN PUBLICATIONS,

Monthly Magazines.

I point YOU out, to the PUBLIC.

62 to 68 West Broadway,

TELEPHONES { 7770 / 7771 } CORTLANDT.

New York.

(EXHIBIT B.)

temporarily forgot that they were temporarily acting as editors of a journal that, nominally at least, represents physicians and not secret nostrum manufacturers.

There was a time when the *New York Medical Journal* held a high position among medical journals of this country. It stood for the ideal in medicine and for the profession it represented. But that was when it was owned by the Appletons when Dr. Frank P. Foster was editor in fact, and who, as such, would not have advocated in its editorial pages secrecy in medicine.

Suggestive Names for Proprietary Remedies.

It is to be deplored that the manufacturers of legitimate proprietary remedies have so strong a penchant for giving fanciful names to their products. The tendency of many of these is decidedly vicious, in that they smack remarkably of thinly-veiled lay advertising. Others are objectionable only because they are in bad taste. It is certainly an imposition on the medical profession to ask it to prescribe these mixtures under names which would be more suitable for apartment houses. It would be foolish to condemn a product merely for its name, but surely a meritorious product deserves a dignified designation.

Secret Remedies in France.

The law in France with regard to medicinal agents may be summed up as follows: The sale of medicinal compounds or remedies, the ingredients of which are known only to the proprietors, is absolutely prohibited in France. The law requires the inventors or owners of such remedies to communicate the recipe of their preparations to the minister of commerce, with a list of diseases to which they are applicable, and a statement of the actual trials to which the medicines have been submitted. The National Academy of Medicine then examines the composition of the remedies to ascertain if their administration might be dangerous in certain cases; if the remedies are good in themselves; if they have produced and will still produce beneficial effects on humanity. This is to a great extent the same throughout all parts of Europe, except in England, where the laws are in a somewhat degenerate condition; the educational standpoint for pharmacists being much below that of the continent.—*International Therapeutics.*

Association News.

Portland Hotel Reservations.

We again urge the members of the American Medical Association who are thinking of going to Portland to make arrangements for their hotel accommodations as early as possible. The chairman of the Committee of Arrangements announces that the committee will have accommodations for all who attend the session, but that it should know, approximately, the number for which it is to provide. Address the chairman of the Committeee of Arrangements. Dr. Kenneth A. J. Mackenzie, Portland, Ore., or Mr. H. C. Bowers, chairman of the Hotel Committee, Portland, Ore.

A Special Car from Kansas City.

Dr. Charles Wood Fassett desires us to announce that he is arranging for a special car from Kansas City, etc., to Portland for the members of the Missouri Valley Medical Society. Full information can be obtained by writing to Dr. Fassett at St. Joseph, Mo.

Marriages.

Walter R. Cook, M.D., to Mrs. Minnie Cobb, both of Mount Pisgah, Iowa.

Robert W. Oakley, M.D., to Miss Grace C. Crawley, both of Moline, Ill., March 6.

James C. Higgins, M.D., to Miss Stella M. Hinch, both of Philadelphia, March 7.

Joseph J. Kane, M.D., to Miss Anna A. Morris, both of Philadelphia, March 6.

Arthur C. Yengling, M.D., Salem, Ohio, to Mrs. Ina Rank Carey, at McDonald, Pa.

Jefferson D. Nifong, M.D., to Mrs. Susan Belden of Vermont, at San Francisco.

Oscar R. Heavrin, M.D., to Miss Clotylle Bamberger, both of Owensboro, Ky., March 9.

H. D. Kneedler, M.D., to Miss Ethel Mason of Missouri, at Manila, P. I., January 11.

Frank J. Gilson, M.D., to Miss Laura Ballantyne, both of Brackett, Texas, March 7.

John Bartow Coryell, M.D., to Miss Nellie Cantwell Fraser, both of St. Louis, March 6.

Thomas B. McDonald, M.D., to Miss Nina Milholland, both of Cumberland, Md., March 4.

James Walker Smith, M.D., St. Louis, to Miss Eugenia James of Pine Bluff, Ark., March 11.

Charles A. Rood, M.D., Madison, Wis., to Mrs. Hannah Genevieve Clark of Chicago, March 9.

Henry Robert Gledhill, M.D., to Miss Cornelia Wyckoff Newton, both of Jerseyville, Ill., March 3.

A. D. Berryhill, M.D., McKenzie, Tenn., to Miss Clara McClure of Weakley County, Tenn., March 5.

Harry Shryock, M.D., Seattle, to Miss Edna McBride of Espanola, N. M., at Seattle, Wash., February 28.

John M. Gulick, M.D., Manteno, Ill., to Miss Zella M. Irwin of Peterborough, Ont., at Manteno, March 9.

Henry Z. Ewing, M.D., Barnes, Kan., to Miss Margaret Burgess of Westmoreland, Kan., at Marysville, Kan., January 4.

Deaths.

Albert B. Craig, M.D. Jefferson Medical College, Philadelphia, 1901; honorman of his class; resident physician for a year in Jefferson Medical College Hospital, and later assistant to Dr. William W. Keen, assistant demonstrator of anatomy in Jefferson Medical College and assistant visiting surgeon to Jefferson Medical College Hospital, a collaborator and sub-editor of *American Medicine* since its inception, died at his home in Philadelphia, March 14, aged 38, after an illness of only ten hours, from cerebrospinal meningitis contracted from a patient.

George Frederick Keene, M.D. Harvard University Medical School, Boston, 1879, a member of the American Medical Association; superintendent of the State Hospital for the Insane, Cranston, R. I.; a member, and once president of the Rhode Island Medical Society; member of the American Academy of Medicine, American Medico-Psychological Society, New York Medicolegal Society, Rhode Island Clinical Society, Providence Medical Association, Rhode Island Medicolegal Society, etc., one of the leading alienists of the east, died at his home in Howard, R. I., March 13, from pneumonia complicated with nephritis, after an illness of only five days, aged 51.

William M. McPheeters, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1840, the oldest alumnus of that institution; the oldest practitioner of St. Louis; at times a member of the faculty of the Missouri and St. Louis Medical College in 1845; editor of the *St. Louis Medical and Surgical Journal*; the oldest member of the St. Louis Medical Society; division surgeon in the Confederate service during the Civil War, died from pneumonia at his home in St. Louis, March 15, after an illness of one week, aged 89.

Horace Wardner, M.D. Rush Medical College, Chicago, 1856, formerly superintendent of the Illinois Southern Hospital for the Insane, Anna, member of the American Medical Association, president of the Southern Illinois Medical Society, and president of the Illinois State Board of Health; a surgeon in the Army throughout the Civil War; member of the Indiana State Medical Society, died at his home in Laporte, Ind., from septicemia, March 17, after a long illness, aged 75.

Charles Hamilton Losey, M.D. New York University, New York City, 1889, a member of the Monroe County Medical Society and Central New York Medical Society, and a member of the board of managers of the State Industrial School, died at his home in Rochester, N. Y., March 13, after a prolonged illness, aged 41.

Milton Marion Fenner, M.D. Cincinnati, 1860, assistant surgeon in the Navy during the Civil War, representative in the State Assembly in 1879-1880, and deputy collector of the port of New York during the Harrison administration, died at his home in Fredonia, N. Y., March 14, after a long illness, aged 67.

John M. Clark, M.D. University of Louisville (Ky.) Medical Department, 1850, twice a member of the state legislature; some-time president of the Medical Association of the State of Louisiana, died suddenly, Dec. 23, 1904, at his home in Russellville, Ala., from heart disease, aged 77.

William S. Hall, M.D. New York University, New York City, 1885, of Rochester, N. Y., a member of the Monroe County Medical Society and the Rochester Pathological Society, died at the Rochester City Hospital, March 8, a few hours after an operation for septic peritonitis, aged 44.

James Alexander Ferguson, M.D. Bellevue Hospital Medical College, New York City, 1881, a member of the American Medical Association, surgeon to Fordham Hospital, died at his home in Highbridge, New York City, March 7, from kidney disease of long standing, aged 45.

Lemuel Foley, M.D. Willamette University Medical Department, Salem, Ore., 1870, twice mayor of Lebanon, Ore., and for many years a member of the city council, died at his home in that city from an attack of influenza, March 7, after a brief illness, aged 63.

James A. Moore, M.D. Yale University Medical Department, New Haven, Conn., 1894, police surgeon of New Haven, died at his home in that city, March 9, from cerebrospinal meningitis contracted from a patient, after an illness of three days, aged 38.

George W. Edison, M.D. London University, 1842, during the Civil War city physician of Quincy, Ill., and surgeon on hospital boats on the Mississippi, died from cerebral hemorrhage in the hospital of the Soldiers' Home, Quincy, March 10, aged 78.

Felix C. W. Printz, M.D. Medical Department of Washington University, St. Louis, 1898, chief of the laryngologic and rhinologic clinic at the O'Fallon Dispensary, St. Louis, died at his home in St. Louis, March 9, after a short illness, aged 28.

Edward William Buck, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1[illegible]90, of Moberly, Mo., a member of the common council, died suddenly from heart disease of long standing at his old home in Keokuk, March 14, aged 39.

Lewis Henry Viallon, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1890, coroner of Iberville Parish, La., of Bayou Goula, died at the home of his brother in Whitecastel, March 14, *from consumption.*

James Clinton Comstock, M.D. College of Physicians and Surgeons in the City of New York, 1884, died at his home in Binghamton, N. Y., from cerebral hemorrhage, after an invalidism of six years, March 8, aged 46.

Louis August Hering, M.D. College of Physicians and Surgeons, Baltimore, 1897, of Cheyenne, Wyo., died at the home of his father in Vailsburg, N. J., February 24, from tuberculosis, after a long illness, aged 34.

E. Julius Boeber, M.D. Kansas City (Mo.) Medical College, 1898, formerly assistant city physician of Kansas City, died at Guadalajara, Mexico, March 12, from tuberculosis, after an illness of six years, aged 34.

Hubbard Ellis, M.D. Medical College of Ohio, 1904, senior interne at the Good Samaritan Hospital, Cincinnati, died in that institution, March 11, three days after an operation for appendicitis, aged 27.

John H. Fleetwood, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1872, died at his home in Thibodaux, La., March 7, from pneumonia, after an illness of a week, aged 75.

A. Blair Frazee, M.D. College of Medicine, Syracuse (N. Y.) University, 1882, of Rochester, N. Y., died at a hospital in that city, March 11, from pneumonia, after an illness of ten days, aged 45.

Albert W. Scofield, M.D. University of Buffalo (N. Y.) Medical Department, 1883, died suddenly at his home in Cincinnati from cerebral hemorrhage, after an illness of two days, March 14, aged 42.

Warren Hippee, M.D. Medical Department of the University of Iowa at Keokuk, 1867, of Des Moines, Iowa, died at Salt Lake City, Utah, March 9, while on his way to California, aged 69.

Carlos Van Julius Doolittle, M.D. College of Medicine, Syracuse (N. Y.) University, 1891, of Utica, N. Y., died at his former home in Paris Hill, N. Y., March 9, after a long illness, aged 38.

James A. Kelly, M.D. McGill University Medical Department, Montreal, 1887, died at his boarding house in South Omaha, Neb., March 12, from hemorrhage, after a short illness, aged 57.

Edwin Jenkins Howe, M.D. College of Physicians and Surgeons in the City of New York, 1873, died suddenly at his home in Newark, N. J., March 14, from cerebral hemorrhage, aged 55.

John Andrew Brosnahan, M.D. New York University, New York City, 1851, died at his home in Pensacola, Fla., January 10, from nephritis, after an illness of 11 months, aged 74.

William C. Weymouth, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1880, of Renovo, Pa., died in Lock Haven (Pa.) Hospital, March 14, aged 51.

Hugh Russell, M.D. Rush Medical College, Chicago, 1855, a pioneer physician of Superior, Wis., died suddenly at his home in that city from heart disease, March 8, aged 78.

Robert J. McAdams, M.D. Louisville, (Ky.) Medical College, 1894, of San Diego, Cal., died at Pasadena, Cal., March 12, from rheumatism, after a prolonged illness, aged 34.

Edward P. Gilpin, M.D. Medical College of Indiana, Indianapolis, 1876, was found dead in bed in his apartment in Oberlin, Kan., March 6, from cerebral hemorrhage, aged 56.

William T. Dunlap, M.D. Cincinnati College of Medicine and Surgery, 1868, died at his home in Cincinnati, March 9, from nephritis, after an illness of two months, aged 60.

Allen Fowler, M.D. Medical Department of the University of Tennessee, Nashville, 1891, died at his home in Union City, Tenn., March 11, after an illness of a few days.

Julian Ridgly Simms, M.D. Missouri Medical College, St. Louis, 1875, of Racine, Wis., died suddenly from heart disease at Magnolia Springs, Ala., March 13, aged 56.

William J. DeVoe, M.D. College of Physicians and Surgeons, Baltimore, Md., 1887, died at his home in Camptown, Pa., March 7, from heart disease, aged about 50.

Leonard Case, M.D. Medical Department University of Tennessee, Nashville, 1893, died at his home in Chattanooga, Tenn., March 12, after a long illness, aged 47.

Charles E. Ellis, M.D. Medical College of Ohio, Cincinnati, 1889, died at the home of his aunt in Covington, Ky., March 2, after an illness of one week, aged 39.

Adam M. Mohney, M.D. College of Physicians and Surgeons, Baltimore, 1890, died at his home in Rimersburg, Pa., March 11, after a prolonged illness, aged 54.

Perrin H. Aldrich, M.D. Cleveland Medical College, 1871, died at his home in Defiance, Ohio, March 7, from nephritis. after a long illness, aged 67.

George W. Connell, M.D. Medical Department of the University of Missouri, St. Louis, 1851, died at his home in Centralia, Mo., March 11, aged 79.

Joseph Schmitz, M.D. University of Würzburg, Germany, 1878, of New York City, died in St. Joseph's Hospital in that city, March 8, aged 53.

Caspar L. Nauman, M.D. Medical College of Ohio, Cincinnati, 1876, died at his home in West Branch, Mich., March 3, from sclerosis of the liver.

William F. Bland, M.D. Jefferson Medical College, Philadelphia, 1849, died suddenly at his home near Verona, Md., Dec. 25, 1904, aged 77.

Willis G. Pope, M.D. New York. 1870, of Keeseville, N. Y., died in the Albany Hospital, February 27, after an illness of several months.

David L. Ross, M.D. Rush Medical College, Chicago. 1872. died suddenly at his home in Pittston, Pa., March 8, from heart disease, aged 59.

Stanton E. Miller, M.D. Northwestern University Medical School. Chicago, 1887. died at his home in Florida, Ohio, March 5, aged 43.

Egbert J. Vail, M.D. New York City, 1854, died at his home in South Manchester, Conn., March 13. from heart disease, aged 83.

Niven Agnew, M.D. Medical Department of Victoria College, Toronto, 1858, died at Brandon. Manitoba, March 1, from pneumonia.

Robert O. Calvin, M.D. Cleveland Medical College, 1879, died, March 7, from paralysis. at his home in Meadville, Pa., aged 54.

William Meyer, M.D. Rush Medical College, Chicago, 1879, died at his home in Milwaukee, March 15, aged 49.

John W. Kirtland, M.D. Illinois. 1886, died at his home in Lakeview, Mich., March 13, aged about 66.

Book Notices.

A Laboratory Manual of Human Anatomy. By Lewellys F. Barker, M.B. Tor., Professor and Head of the Department of Anatomy in the University of Chicago and Rush Medical College. Assisted by Dean De Witt Lewis, A.B., M.D., and Daniel Graisberry Revell, A.B., M.B., Instructor in Anatomy in the University of Chicago. Illustrated. Pp. 583. Price, $5.00. Philadelphia and London: J. B. Lippincott Co. 1904.

This is distinctly a laboratory or dissecting-room manual and not a descriptive anatomy. It teaches how to dissect the human body in order successively and properly to expose the different parts to the best advantage. The various regions of the body are taken up in order, and the points of each are cleary indicated. This is not always done by describing the particular points or features of the part, but cleverly arranged interrogations which direct the student's attention to the part and compels him to exercise his own powers of observation with the result of fixing the facts more firmly in his mind. It is a most excellent method of teaching anatomy in the dissecting room. The illustrations have been selected with care and good judgment from standard atlases and anatomies. Many of them are in colors more clearly to differentiate the tissues.

The adoption of the modern nomenclature as formulated by the German Society of Anatomists is a distinct improvement on the older works. The volume is neatly gotten up, not too large for convenient handling, and, on the whole, it is the best and most modern dissecting-room manual with which we are acquainted.

The Other Side of the Lantern. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., Sergeant-Surgeon in Ordinary to H. M. the King. With 40 Illustrations from Photographs, by the Author. Cloth. Price, $5.00 net. Chicago: W. T. Keener & Co. 1905.

Sir Frederick Treves went around the world with his eyes open. He saw more than *most men*, and has written about what he saw in such a way that the reader sees it. almost. India, Burmah and Ceylon, China and Japan are the countries visited—at least, practically the whole of the book is taken up with these countries. The author came back through the United States, but all he has to say about this country is contained in a half dozen pages. There is a short description of the Yosemite Valley and of the Grand Canon of Arizona, and then there is a jump to Yarmouth, England. The book is written in a strictly popular style; there is scarcely a word to indicate that the writer is a surgeon, although he comments on the Japanese surgeon and on the Japanese Red Cross Society. Of the former he says: "The Japanese surgeon is no longer a servile imitator. He is introducing into his methods the results of his own ingenuity. Many features which in Europe are of the latest suggestion have already been anticipated in Japan. There is every probability that the Japanese school of surgery will become a great school, for the native of Japan has qualities which are excellent in the making of a surgeon; he is not troubled by 'nerves,' he is infinitely patient, fastidiously clean, as well as most neat and dexterous with his hands." The author's style is crisp, occasionally poetical and always interesting.

Miscellany

ISTHMIAN SANITATION.

Newspaper Comment on the Isthmian Canal Commission and Its Methods of Sanitation.

We quote the following from the Boston *Advertiser*, March 15, 1905:

"President Roosevelt is hearing pretty sharply from a good many old and influential friends of his, here in Boston and elsewhere, we find, about the Panama commission. The President has been told that for crass stupidity some of his appointees can not be beaten. The engineers have had some pretty sharp things to say. But the physicians all over the country are the most angry. They have heard from some of the peculiar decisions of the Panama commission; and they agree pretty unanimously that for stupidity on health matters the commission can not be beaten. If the President does not interfere, they agree, the Panama canal will be a disgrace to the United States. And they have plenty of reason for saying so, as they have the proofs in black and white. The records of the canal commission prove everything that needs to be proved. in these charges.

"We do not agree with the physicians when they charge President Roosevelt with bad faith. Theodore Roosevelt is not that kind of a man. Either he misunderstood them or they misunderstood him. They say that when they went to him with practically every possible indorsement of Colonel Gorgas for a place on the commission, he explained that for political reason Gorgas could not have the place. as he was only an army officer and had no political backing. But, they insist. President Roosevelt assured them that Gorgas should have absolute power on the isthmus, on all matters pertaining to the health of the canal workers or the inhabitants of the canal strip. That satisfied them. They did not profess to know much about politics. It might be impossible, as the President said, to put a physician on the Panama commission; and so long as Gorgas could have the power to see that the canal strip was kept free from yellow fever and other pestilences, they felt agreeable to letting Gorgas do his work, in any way that suited the present.

"But the trouble is now that the agreement, if there was any such, has never been kept. Gorgas has had his orders countermanded by the ridiculous commissioners. Even his orders for comparatively inexpensive things. necessary to his work. have been cut down by Grunsky and the others. Of course the most necessary thing on a place like the isthmus, to stop the spread of enteric fevers. is to keep the workmen from the mosquitoes, which spread the diseases. Yet Gorgas' order for mosquito netting, not a very costly article, was cut down by Grunsky to about 20 per cent.. according to one statement. And the same story is told as to the other orders given by surface perspiring freely, thus insuring increased excretion and elimination. 4. Slight increase of the body temperature rarely exceeding two degrees, subsiding rapidly after removal of the pack, and probably due to direct heating of the blood.

Queries and Minor Notes.

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

REMOVAL OF TATTOO MARKS.

Gloster, Miss., March 15, 1905.

To the Editor:—I have a patient who has been "tattooed" with India ink or some other stain and now wishes to have it removed; will you kindly suggest some harmless method whereby I can remove the objectionable stain? H. U. Street, M.D.

Answer.—There is no entirely satisfactory method of removing tattoo marks and other marks due to the deposit of insoluble color substances in the skin. The principle of almost all of the methods for removing these marks is to cause their destruction either by mechanical means or by the production of an inflammatory process which causes a superficial eschar. Small marks can be removed by excision or by electrolysis. In removing them by electrolysis, the needle attached to the negative pole is inserted parallel to the surface of the skin into the mark and a current of from 5 to 8 milliamperes (5 to 10 small bichromate cells) is passed through the needle. Several such punctures are made parallel to each other until the surface is blanched. Usually it is not necessary to allow the current to pass for more than 20 to 30 seconds for each puncture. In this way, a superficial eschar is formed which will drop off in the course of a week and will leave a white superficial scar. Of course, neither this method nor excision is satisfactory for large marks. For all but the smallest marks the method of treatment is to produce a violent inflammatory reaction and a superficial eschar by the use of a chemical. Various methods of doing this have been suggested. Perhaps the best of these is Variot's, which is as follows: First place on the tattoo mark a strong solution of tannin and tattoo this into the surface. Then the surface is rubbed vigorously with a nitrate of silver stick until the area becomes black from the formation of a silver tannate in and on the skin. In the course of the next two or three days there is a moderate inflammatory process and a close adherent crust forms. Ordinarily there is not much pain and after the third or fourth day this almost disappears, except on motion of the parts, unless secondary infection should occur. After about two weeks the crust comes away, leaving a superficial, pink cicatrix, which gradually becomes of normal color. After about two months the scar is hardly noticeable. It may be necessary to repeat the treatment when it has not been vigorous enough.

OWNERSHIP OF NURSE'S RECORD.

White Earth, N. D., March 15, 1905.

To the Editor:—In a case of typhoid fever in my private practice where a trained nurse was employed, a record of the case was kept by the nurse at my orders. To whom does this record belong, according to law or usage, or both? Patient's mother refuses to remit fee until record is given to him, she claiming it on the ground that the nurse was in his employ and that the product of her labor belongs to him. Record is either lost or destroyed.

A. A. W.

Answer.—A nurse is presumed to perform her duties under the direction of the physician. A record is made for the physician, on blanks often furnished by him, and naturally belongs to him. It must be remembered, however, that sometimes the nurse is employed directly by the patient, and as such an employe the nurse might be instructed to make a record, and in that case such record would belong to the patient.

BOOK ON HYGIENE FOR THE LAITY.

Elloree, S. C., March 6, 1905.

To the Editor:—Please advise me as to a book on hygiene that would be suited for a private family; one as free as possible from technicalities would be best. Sophia Brunson, M.D.

Answer.—An excellent book for your need is "A Manual of Personal Hygiene," by Walter Pyle of Philadelphia, published by W. B. Saunders & Co., Philadelphia. This is simple, yet complete; it has recently been thoroughly revised and includes home treatment by the use of water, massage, exercise, etc. Its advice is safe and the physician will find it in the hands of patients to be a help toward intelligent co-operation.

RELATIONS OF GRADUATES OF AMALGAMATED SCHOOLS.

Cambridge, Mass., March 18, 1905.

To the Editor:—When one medical school is amalgamated with another, what is the status of a graduate of the school that is absorbed?

J.

Answer.—The change will not alter his status in the profession. He is still an alumnus of the old institution and is also an adopted son of the new school.

State Boards of Registration.

COMING EXAMINATIONS.

Maine Board of Medical Registration, City Building, Portland, March 28. Secretary, Wm. J. Maybury, M.D., Saco.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Central District Board of Medical Examiners for the Indian Territory, South McAlester, April 3, 1905. Secretary, B. W. Caldwell, M.D., Hugo.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Vermont February Report.—The report of the Vermont State Board of Medical Registration, held February 7-9, published in The Journal, March 11, should read:

College.	Year Grad.	Per Cent.
PASSED.		
University of Vermont	(1904)	75
FAILED.		
Lavall University	(1904)	63

The Public Service.

Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending March 18, 1905:

Wilson, William H., asst.-surgeon, granted four months' leave of absence, with permission to go beyond the sea.

DeLoffre, Samuel M., asst.-surgeon, reports change of status from duty, to go on leave of absence for thirty days.

Snyder, Henry D., surgeon, ordered to proceed from Fort Sam Houston, Texas, to Governor's Island, N. Y., as witness before retiring board.

Reilly, John J., asst.-surgeon, granted six months' sick leave of absence.

Pierson, R. H., asst.-surgeon, left General Hospital, Fort Bayard, N. M., on forty days' leave of absence.

Bourke, James, asst.-surgeon, reported for temporary duty at Medical Supply Depot, New York City.

Porter, R. S., asst.-surgeon, leave of absence extended ten days.

Bartlett, C. J., asst.-surgeon, left Army and Navy General Hospital, Hot Springs, Ark., on ten days' leave of absence.

Shellenberger, James E., contract surgeon, ordered from temporary duty at Jackson Barracks, La., to his proper station, Fort Sam Houston, Texas.

Halliday, Francis A., contract surgeon, ordered from Fort McPherson, Ga., to Fort Caswell, N. C., for duty.

Lemmon, Robert, contract surgeon, ordered from Fort Wadsworth, N. Y., to temporary duty at Fort Schuyler, N. Y., and on its completion, to return to his proper station, Fort McKinley, Me.

Tenney, Elmer S., contract surgeon, ordered from Allston, Mass., to duty at Fort Strong, Mass.

Marvin, Marion F., contract surgeon, arrived at Fort Robinson, Neb., for duty.

Rebert, Michael A., contract surgeon, left Fort Totten, N. Y., on leave of absence for ten days.

Dougherty, James C., contract surgeon, left Fort Slocum, N. Y., with recruits for Columbus Barracks, Ohio.

Dickenson, Clarence F., contract surgeon, relieved from further duty in the Philippine Division, and ordered to Fort Logan, Colo., for duty.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 18, 1905:

Anderson, F., medical inspector, detached from the *Brooklyn* and ordered home to wait orders.

Norton, O. D., surgeon, ordered to the *Olympia*.

Steele, J. M., surgeon, detached from the *Olympia* and ordered to the *Brooklyn*.

Backus, J. W., asst.-surgeon, detached from the Naval Hospital, Portsmouth, N. H., and ordered to continue duties on the *Southery*.

Foster, T. G., asst.-surgeon, ordered to the Naval Hospital, Norfolk, Va.

Bishop, L. W., asst.-surgeon, detached from the Navy Yard, New York, N. Y., and ordered to the Naval Hospital, Portsmouth, N. H., with additional duties on the *Southery*.

Schwerin, L. H., asst.-surgeon, ordered to the *Hancock*.

Furlong, F. M., P. A. surgeon, detached from the *New York*, when placed out of commission, and ordered home to wait orders.

Smith, G. T., surgeon, detached from the Naval Hospital, Norfolk, Va., and directed to wait orders.

Rothganger, G., surgeon, ordered to the Naval Hospital, Norfolk, Va.

Nash, F. S., surgeon, appointed surgeon from Feb. 23, 1905.

Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 15, 1905:

Stoner, G. W., surgeon, three days' leave of absence under Paragraph 191 of the Regulations.

Wickes, H. W., P. A. surgeon, to rejoin station at Reedy Island Quarantine.

Mathewson, H. S., P. A. surgeon, granted leave of absence for five days from March 13.

Billings, W. C., P. A. surgeon, granted extension of leave of absence for five days from March 17.

Wilson, R. L., P. A. surgeon, relieved from duty at the Hygienic Laboratory. Bureau letter of February 8, granting leave of absence for one month from March 1, 1905, amended so that said leave shall be for twenty-three days.

Berry, T. D., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

McLaughlin, A. J., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Long, J. D., asst.-surgeon, to report to chairman of board of examiners at Manila, P. I., May 15, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Francis, Edw., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Boggess, J. S., asst.-surgeon, granted leave of absence for four days from March 21.

McCoy, G. W., asst.-surgeon, to report to chairman of board of examiners at Manila, P. I., May 15, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Warren, B. S., asst.-surgeon, to report to chairman of board of examiners at Washington, D. C., March 27, 1905, for examination to determine his fitness for promotion to the grade of P. A. surgeon.

Ebersole, R. E., asst.-surgeon, granted leave of absence for ten days from March 15.

Barnes, W., A. A. surgeon, granted leave of absence for two days from March 15.

Hammond, A. P., A. A. surgeon, granted leave of absence for five days from March 7, 1905, under Paragraph 210 of the Regulations.

Walkley, W. S., A. A. surgeon, granted leave of absence for two days from March 16.

BOARDS CONVENED.

Board convened to meet at Washington, D. C., March 27, 1905, for the examination of assistant surgeons. Detail for the board: Asst.-Surgeon-General G. T. Vaughan, chairman; Surgeon D. A. Carmichael; P. A. Surgeon Jos. Goldberger, recorder.

Board convened to meet at Manila, P. I., for the examination of assistant surgeons. Detail for the board: P. A. Surgeon V. G. Heiser, chairman; P. A. Surgeon Carroll Fox; P. A. Surgeon C. W. Vogel, recorder.

Bureau letter of March 8, 1905, convening a board to meet at San Francisco, April 3, 1905, for the examination of assistant surgeons, revoked.

Health Reports.

The following cases of smallpox, yellow fever and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended March 17, 1905:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, March 4-11, 3 cases.

Florida: Jacksonville, March 4-11, 1 case.

Georgia: Macon, March 4-11, 1 death.

Illinois: March 4-11, Chicago, 6 deaths; Danville, 16 cases.

Kentucky: Louisville, March 2-9, 4 cases.

Louisiana: New Orleans, March 4-11, 17 cases, 5 imported.

Michigan: Detroit, March 4-11, 1 case; at 187 places, Feb. 18-25, present.

Missouri: St. Louis, March 4-11, 38 cases, 2 deaths.

New York: March 4-11, Mount Vernon, 1 case; New York City, 1 case.

Ohio: Zanesville, Jan. 28-Feb. 4, 1 case.

South Carolina: Charleston, March 4-11, 2 cases; Greenville, Feb. 25-March 11, 7 cases, 8 deaths.

Tennessee: Memphis, March 4-11, 20 cases; Nashville, March 4-11, 1 case.

West Virginia: Wheeling, Feb. 25-March 4, 1 case.

Wisconsin: Milwaukee, Feb. 25-March 11, 28 cases.

SMALLPOX—FOREIGN.

Brazil: Bahia, Jan. 21-Feb. 16, 27 cases, 2 deaths; Para, Feb. 7, present; Rio de Janeiro, Jan. 29-Feb. 12, 47 cases, 22 deaths.

China: Shanghai, Jan. 22-Feb. 4, 15 cases foreigners, 35 deaths natives.

Ecuador: Guayaquil, Feb. 14-21, 2 deaths; Porto Viejo, Feb. 23, present.

France: Paris: Feb. 18-25, 23 cases.

Great Britain: Feb. 18-25, Birmingham, 3 cases; Leeds, 4 cases; Leith, 1 case; Newcastle-on-Tyne, 11 cases; Nottingham, 1 case; South Shields, 5 cases; Glasgow, Feb. 27-March 3, 2 cases.

India: Bombay, Feb. 7-14, 124 deaths; Calcutta, Feb. 4-11, 4 deaths; Karachi, Feb. 5-12, 3 cases, 2 deaths; Madras, Feb. 4-10, 2 deaths.

Italy: Catania, Feb. 18-25, 1 death.

Norway: Christiania, Feb. 11-25, 3 cases.

Russia: Moscow, Feb. 4-18, 13 cases, 4 deaths; Odessa, Feb. 11-18, 2 cases, 1 death; St. Petersburg, Feb. 4-11, 5 cases.

Spain: Barcelona, Feb. 10-20, 20 deaths.

Turkey: Constantinople, Feb. 12-19, 4 deaths.

Uruguay: Montevideo, Feb. 7, epidemic.

West Indies: Grenada, Feb. 9-23, 10 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, Jan. 29-Feb. 12, 16 cases, 7 deaths.

Ecuador: Guayaquil, Feb. 14-21, 4 deaths.

Panama, Panama, Jan. 1-March 4, 33 cases, 14 deaths.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, Jan. 27-Feb. 12, 20 cases, 6 deaths.

India: Bombay, Feb. 7-14, 537 deaths; Calcutta, Feb. 4-11, 106 deaths; Karachi, Feb. 5-12, 54 cases, 52 deaths.

Medical Organization.

THE COMING STATE MEETINGS.

J. N. McCormack, M.D.

NATIONAL ORGANIZER OF THE AMERICAN MEDICAL ASSOCIATION.

BOWLING GREEN, KY.

It has been my privilege within the last four years—and I esteem it to have been a great one—to attend the meetings and to make a careful study of the proceedings and the methods of nearly all of the state societies in the United States. The meetings in some states were so interesting and profitable and in others so barren of practical results as to make the causes for this disparity an interesting subject for investigation, especially as the available material and personnel for the programe usually seemed to be about equally abundant.

The success of these meetings is so important at the present stage of the organization work, and is so dependent on the forethought and the efficiency of president, secretary, committee on scientific work, committee of arrangements, councilors and other officers, that it seems proper for me, in the light of an experience which has not before been possible to any other person, to offer some suggestions for the consideration of those charged with such important duties during the transition from the old to the new plan of organization. As practically all but three of these societies are now operating under the uniform plan, my suggestions will be directed more especially to methods adapted to work under it.

The secretary, councilors and committee on scientific work should have begun the preparation for the next annual program from the adjournment of the last meeting. If they have kept in close touch with their county societies, through the abundant agencies provided in the by-laws, and have made these the active bodies and feeders they were intended to be, and have stimulated members to present their best work there, in the way of postgraduate and original investigations, as well as set papers and discussions, and have followed these up during the year, it will be largely a question of selection to get the best of these for their programs. revised and revamped as a result of the criticism to which they were subjected in the home society. These should be grouped into symposia, as far as practicable, and those who are to take part in the discussions should be prepared for crisp, brief and well-digested talks, to be followed by free general discussion, strictly limited as to time and kept well in hand by the presiding officer and the "master of debate," selected from the committee on scientific work. This assistant to the secretary should be on the alert, constantly but unobtrusively, to see that those who are to take part in the discussions are in place and ready for the duties assigned them. Promising younger members who have been especially active in their county societies should be encouraged by being given places on the program for both papers and set discussions, the older members being relied on more for the general discussions. A sharp lookout should be kept for such young men at all times in the proceedings of both the county and state meetings. No one should ever be put on the program who failed from any cause except illness to fill any part assigned to him at the last meeting, and this rule should be given prominence on the printed program. Two ushers should be on hand constantly to see that members and visitors are seated, and especial attention should be given to such older members as are in the habit of grouping themselves together in the rear of the hall and disturbing the proceedings by loud conversation and other unseemly practices.

With such a program and arrangements, and freed from the time-consuming parliamentary and business discussions, and the duty of electing the officers, the general meeting can in future devote its entire time to scientific work. Under a model program, of which I have seen several in operation, the invocation, address of welcome and response should be followed by the first symposium within twenty minutes after the meeting has been called to order, and papers and discussions should follow from hour to hour and from day to day until the program has been completed without an intervening motion, unless it be some motion directly connected with the scientific work. A motion on any other subject should, of course, go to the house of delegates at once and without debate.

No exhibit should ever be permitted about the hall or its approaches, and the contracts should always require that they be closed during the hours of meeting. Nothing unethical should even be considered for the exhibit rooms, and probably nothing should be admitted which is not advertised in the state journal, where one is maintained.

The duties of the house of delegates are so well defined in the constitution and by-laws as to require little elaboration. Its program should be entirely distinct from that of the General Meeting, following it in the same leaflet, for the information and guidance of all members. Its first meeting should be held in the afternoon of the day preceding that fixed for the General Meeting. By holding an afternoon and evening session thus in advance its business may usually be so shaped as to enable delegates to attend nearly all of the scientific meetings. Its hall may be much smaller, but should have convenient rooms for committees and should be sufficiently remote from the hall assigned to the General Meeting to prevent interruption, should it be necessary, for any reason, for both bodies to be in session at the same time. The importance of these details should be impressed on the committee of arrangements long in advance, as much of the comfort and success of the session will depend on the attention given to them.

At least one session should be devoted to the discussion of the status and enforcement of the medical and health laws of the state. The state board of health and the state board of medical examiners, or delegates from these bodies, should be invited to be present and take part in these discussions, with the view of securing the harmony and concert of action so essential in procuring and enforcing proper legislation. Through the delegates, detailed reports should be heard as to the condition and needs of the profession in each county, supplemented by suggestions and recommendations from the councilor of the district. To do all these things, in addition to the manifold other duties imposed by the by-laws, it may sometimes be necessary for the house to sit on the second [illegible] day while the General Meeting is in session, but this [illegible] avoided if possible, even if it is necessary to re[illegible]ssion for a day after the larger meeting has ad[illegible] this body will grow in importance and occupy [illegible]re time as the methods for the enforcement of [illegible]ealth laws are perfected, no one should accept [illegible]elegate who will not devote himself to the [illegible]m and remain each year until it is completed. [illegible]ucted on the plans here outlined are pleasant [illegible]ost beyond the conception of those who are [illegible] the methods of the old societies. As soon [illegible] in reach under them are fully realized they will attract the attention and command the respect of all those interested in scientific medicine in every state, and give satisfaction to all except the few politicians and senior wranglers who could talk endlessly on parliamentary or business questions under the old régime, without effort or preparation.

Ramsey County Medical Society.

The annual meeting of the Ramsey County Medical Society, says the editor of the *St. Paul Medical Journal*, showed the most satisfactory and prosperous condition of its affairs that has existed in its entire history. The library has grown in size and usefulness, and now has upward of 4,500 volumes on its shelves, and receives regularly and keeps on file 150 periodicals. During 1904, 1,500 readers used the library. The catgut industry is growing rapidly, and its profits and those of the *Journal* were larger than in any previous year, and from these two sources there was added a very substantial sum of money to the building fund of the society, which is assuming very respectable proportions. The members of the Ramsey County Medical Society may well be proud of the work they are doing, and each member of the society should make an effort to do something to help our money-makers during the year. Keep an eye open for new subscribers to the journal; when the agents of the pharmaceutical and instrument houses come around ask them if their firms advertise with us, and when you can consistently do so favor those who do advertise with us. Talk catgut to your friends from out of town, and if they have not used our catgut see that they do so; the laboratory will gladly send sample envelopes whenever asked to do so. Remember that every member of the society is a part owner in our property, and that the more money we make the sooner we will be able to accomplish what we are all working for, the acquisition of a building and a home of our own.

Society Proceedings.

COMING MEETINGS.

American Medical Association, Portland, Ore., July 11-14, 1905.
Medical Association of the District of Columbia, Washington, April 4.
Association of American Medical Colleges, Chicago, April 10.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Association of the State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
American Medico-Psychological Association, San Antonio, Texas, April 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Feb. 8, 1905.

The President, Dr. James M. Anders, in the Chair.

Symposium on Gastric Ulcer.

ETIOLOGY AND PATHOLOGY.

Dr. **Joseph McFarland** concludes that two factors, one incidental and one essential, are engaged in the etiology of gastric ulcer. The incidental factor is the gastric juice, containing the proteolytic serum without which the formation of gastric ulcer is impossible. The essential factor is a loss in the *natural immunity of a circumscribed portion of the gastric mucous membrane, in consequence of malnutrition, resulting from thrombosis, embolism, traumatic injury and the other obstructions of the minute nutrient vessels in the gastric wall, or their infections or toxic agents circulating in these vessels. The relation of anemia to gastric ulcer he thinks quite as probably secondary as primary.*

INCIDENCE IN PHILADELPHIA.

Dr. **Albert P. Francine** analyzed the postmortem records of the Philadelphia Hospital for the years Jan. 1, 1893, to Dec. 31, 1903, inclusive, and based the following conclusions on the result of his studies: Total number of autopsies in these years, 2,830. Ulcers in association with chronic nephritis, 16 gastric and 1 duodenal; with tuberculosis, 11 gastric and 1 duodenal; with both tuberculosis and nephritis, 3 gastric: with chronic bronchitis, 1 gastric; with pneumonia, 1 gastric; with atelectasis of lung, 1 both gastric and duodenal; with carcinoma of stomach or elsewhere, 4 gastric; with fatty heart, 1 both gastric and duodenal; with enterocolitis in infants, 2 gastric. In 20 out of 42 cases, 47 per cent., the ulcers were multiple. The sexes were equally divided. The average age for males and females was 43 years. The greatest number of cases in males (5) occurred between 50 and 60 years, and in females (5) between 40 and 50 years. Three of the cases were in infants, 10, 20 and 36 months old. The largest ulcer measured 9 cm. to 10 cm. by 8 cm. to 10 cm.

SYMPTOMATOLOGY AND DIAGNOSIS.

Dr. **Campbell P. Howard** of Baltimore said the mode of onset in the majority of cases is gradual and insidious. In the smaller group hematemesis and perforation are sudden. In acute gastric ulcer blood is, as a rule, vomited. In the chronic form pain, vomiting and hematemesis are cardinal symptoms. In every case of gastric ulcer there is some hemorrhage, though it may not appear for months or years after the onset. The physical examination is negative in many complicated cases, except that tenderness is present. The most frequent secondary complications are hypertrophy of the pylorus, adhesions and inverted viscera. Dilatation of the stomach signifies pyloric obstruction.

MEDICAL TREATMENT.

Dr. **F. P. Henry** said that the tendency of gastric ulcer is toward recovery; therefore, the object of treatment should be to assist nature, and the most important indication is rest, both general and local. The latter is best secured by rectal feeding. Opium and its preparations per os are conducive to rest by allaying pain and peristalsis and blunting appetite. Hyperacidity should be counteracted by lime water and bismuth rather than by sodium bicarbonate, which, on account of the evolution of gas attendant on its administration, might distend the stomach to a dangerous extent. Milk, raw, boiled or peptonized, is the best article of diet in the early stages. Buttermilk is sometimes an excellent succedaneum The formation of tough coagula may be prevented by mixing the milk with a little well-boiled flour or arrowroot. Of medicines he recommends bismuth subnitrate in large doses, suspended in barley water or mucilage. Nitrate of silver is useless and calomel injurious, interfering with healing processes. Carlsbad water and Carlsbad salts are useful as antacids and laxatives. When chlorosis is present, iron albumin prepared extemporaneously by mingling a solution of sesquichlorid of iron with "egg water," is recommended.

SURGICAL TREATMENT.

Dr. **William L. Rodman** stated that this resolves itself into treatment of the ulcer itself and of the several complications. He believes that perforation is far more common than is thought. The treatment of hemorrhage is generally medical, but if there is shown a recurring feature the treatment should be surgical. The treatment of stricture or hour-glass stomach is a question of physics and not of chemics, and generally should be by operation. Uncomplicated gastric ulcer, in the vast majority of instances, can be treated by medical means. One should operate only after medical means have been fairly tried for at least four weeks without results. Then the abdomen should be opened, but without any positive convictions of what should be done until the stomach is examined from the pylorus to the cardia, after which the procedure best adapted to the conditions present should be carried out.

DISCUSSION.

Dr. **Alfred Stengel** agreed with Dr. Howard that it is possible to distinguish between the acute and chronic form of ulcer, but that this is a clinical rather than a pathologic differentiation. Chronic forms of ulcer impress him as being simply of the indolent type with the same general pathologic basis and nature as the acute, but with different local conditions which cause their different course. Statistics would be much clearer if all cases were based on a pathologic study after careful discrimination between the different types of ulcers and erosions, which ought not to be called ulcers. He agreed that gastric ulcer is a medical disease, unless resistance shows that medical treatment will not avail. He thought the frequent association of gastric ulcer with nephritis and tuberculosis shown by Dr. Francine in the statistics of Blockley might be accounted for by the character of the patients in that hospital.

Dr. **John H. Gibbon** believes that many cases of gastric ulcer that recover after operation do so because of the after-treatment. The patient should be fed by the bowel for three weeks. He referred to the fact that often in the presence of gastric symptoms and a palpable tumor in the abdomen there is the belief that malignancy is present and a wrong prognosis is therefore given. In all such cases where there is the slightest doubt he advises exploratory operation.

Dr. **Lambert Ott** found that the administration of 5 grains of nitrate of silver in 6 ounces of water, a tablespoonful in a wineglass of water half an hour before meals, gives good results. He does not approve of boiled milk as a dietary, but has accomplished the best results in using milk as a basis with broth.

Dr. **Joseph Sailer** said that the rather small percentage of gastric ulcer in this country suggested the possibility of the condition being overlooked by pathologists. He thinks the most important element in treatment is absolute rest. Reports of different men show practically the same results whether feeding is by the mouth or rectum. He prefers the latter method. After commencing alimentation by the mouth, olive oil and some of the bland nutriments may be given without harm to the mucous membrane of the stomach. The entire disappearance of symptoms for two or three weeks, with no blood in the stools, and the patient on a liberal diet, may be accepted as evidence of recovery.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Cystitis.

H. K. Stockwell, Yarmouth, Me., recommends the following combination, which, in his experience, has proved very satisfactory in the treatment of cystitis associated with alkalinity of the urine.

℞.	Salol.		
	Acidi boracici, āā	gr. v	3
	Codeinæ sulph.	gr. ¼	01

M. Ft. chartula No. i. Sig. One powder after meals and at bedtime.

Measles.

Stevens, in *Med News*, outlines the following treatment in measles: Administer small initial doses of calomel, preceded by a glycerin suppository. The severe vomiting is usually best controlled by cracked ice, lime water or bismuth. The following is recommended to increase the elimination by the skin and kidneys:

℞.	Potass. citratis	ʒii	8
	Vini ipecacuanhæ	ʒii	8
	Tinct. opii camph.	ʒiii	12
	Syr. tolutani	℥i	30
	Aquæ cinnamoni q. s. ad	℥iii	90

M. Sig.: One teaspoonful every three hours.

Pulmonary Hemorrhage.

Hemoptysis occurs in the first stage of tuberculosis occasionally, in the second stage rarely, in the third stage frequently, according to Seymour Taylor of London. If it occurs in the first stage it does good, as a rule, and not harm.

The treatment of hemoptysis in the third stage, according to this author, is most important. In carrying out this treatment attention must be given to the house, to the room and to the patient. As to the house, the physician in attendance must get rid of friends, allay all noise, institute proper ventilation, and give assurances of recovery to the patient. No examination of the patient should be made except to locate the seat of hemorrhage. Do not raise the patient to an upright position nor turn him in bed. There is no harm in the patient fainting. The patient should not be left until the hemorrhage stops. The treatment consists in: 1, Local applications of ice, which do no good except in old superficial cavities, unless confidence is given the patient; 2, wet cupping, by the withdrawal of from one to two ounces of blood, is of service.

The cough may be relieved by means of hypodermic injections of opium or morphin. Or the following may be given:

℞.	Liq. ext. opii (B. P.)	m. x		65
	Ext. ergotæ fld	m. xv	1	
	Tinct. digitalis	m. x		65
	Aquæ camphoræ	℥i	30	

M. Sig.: One teaspoonful every two hours.

Calcium chlorid is also recommended, given internally, in the treatment of the hemorrhage. The following day, after the hemorrhage has been checked and reaction has taken place, as shown by the elevation of the temperature and pulse, bleeding will do good after from 24 to 36 hours have passed.

The mineral acids are not of much importance in the treatment of hemoptysis, according to this author. However, the following combination is worthy of trial:

℞.	Acidi sulphurici dil	gtt. x		65
	Liq. morphinæ hydrochlor	gtt. v		30

M. Sig.: To be taken at one dose and repeated in three hours.

The vegetable acids (gallic and tannic) are of no value. By producing astringent effect in the bowels the pulse goes up and hemorrhage recurs.

Calomel is recommended given in three-grain doses (.20).

Potassium iodid may also prove valuable if given in small doses at first, so as better to saturate the system.

Ingals recommends as the most efficient remedies in checking the hemorrhage, full doses of ergot, gallic acid, or lead acetate and opium. Hemorrhage may sometimes be checked by the inhalation of a spray from a weak solution of the following:

℞.	Liq. ferri subsulphatis	m. x		65
	Aquæ q. s. ad	℥i	30	

M. Sig.: To be used as a spray.

It must not be forgotten that, as a rule, the hemorrhage usually ceases in a short time by simply keeping the patient at rest, whether remedies are used or not.

The following combinations are sometimes recommended in the treatment of pulmonary hemorrhage:

℞.	Pulv. opii	gr. vi		40
	Acidi gallici	gr. xxx	2	

M. Ft. cap. No. xii. Sig.: One capsule every three hours. Or:

℞.	Pulv. opii	gr. v		30
	Plumbi acetatis	gr. xx	1	30

M. Ft. cap. No. x. Sig.: One capsule every three hours.

In any case, there is often greater danger of doing too much than too little.

Ergotin is also of value, according to some authorities, combined as follows:

℞.	Ergotini	ʒss	2	
	Morph. hydrochlor	gr. iss		09

M. Ft. pil. No. x. Sig.: One pill three times a day. Or:

℞.	Spts. terebinthinæ	ʒiss	6	
	Olei amygdalæ	ʒiss	6	
	Mucil. acaciæ	ʒv	20	
	Syr. simplicis	ʒv	20	
	Aquæ q. s. ad	℥viii	240	

M. Ft. emulsio. Sig.: One tablespoonful every hour.

The following treatment of hemoptysis is suggested by the *Med. Press:* Injections of forty drops (2.65) of a 1-1000 adrenalin solution, or injections of gelatin one and a half drams (6.00) to ten ounces (300). Or:

℞.	Hydrastinin hydrochlor.	gr. ii		12
	Aquæ	℥v	150	

M. Sig.: One tablespoonful every hour. Or:

℞.	Hydrastinin hydrochlor.	gr. ss		03
	Quin. hydrobrom.	gr. i		06
	Ext. belladonnæ	gr. 1/5		012

M. Ft. pilula No. i. Sig.: One such pill night and morning. Or:

℞.	Calcii chloridi	ʒi	4	
	Tinct. opii	ʒss	2	
	Syr. aurantii	℥i	30	
	Aquæ menth. pip.	℥iv	120	

M. Sig.: One tablespoonful every two hours.

Fitzgerald, in *Cleveland Medical Jour.*, states that the best treatment of hemoptysis requires: 1, Absolute physical rest; 2, mental quiet and relief from fear and anxiety; 3, morphin and atropin in sufficient doses to insure both the preceding; 4, control of cough, fever and pleuritic pain, and careful attention to diet; 5, suggestive measures as icecaps over the heart, salt and cracked ice by the mouth; 6, free use of bromids and nerve sedatives in the nervous patient; 7, nitrates or veratrum when high blood pressure persists; 8, care in not placing too much reliance on so-called specifics such as ergot and adrenalin; 9, hypodermoclysis with normal saline solution when indicated.

Dietetics in Constipation.

In the treatment of constipation, according to S. Cohn in *Jour. of Advanced Ther.*, one must be sure that he is dealing with a true case of habitual constipation, which is not always an easy matter. Hemorrhoids, fissures of the anus, hypertrophy of the prostate, tumors of the uterus or ovaries, retroflexion or anteflexion of the uterus may all give rise to constipation. Diseases of the intestines themselves, such as stenosis, and diseases of the stomach, such as hyperacidity and anacidity, may produce similar conditions.

When the constipation is due to a faulty condition of the bowels, either hygienic or dietetic errors are generally the cause. One of the greatest abuses in correcting the constipation is the use of drugs which will destroy, after a while, the function of the bowel. Another frequent cause is the neglect of the patient in attending the calls of nature. Patients suffering from constipation generally drink an insufficient amount of water. Cold water will stimulate and cause a more rapid and copious secretion of the digestive juices, therefore it is preferable to warm water. Patients should make it a rule to drink between six and eight glasses of water a day. Very little residue is left from the proteids consumed, consequently the bulk necessary for stimulation is made up from the vegetables. The residue from the proteids is 4.9 to 5.2, while that made up from vegetables, such as rye bread, beets, cabbage, turnips, beans, is about 20.

In summing up the treatment of constipation he states that one must begin with: 1. Correction of bad habits. 2. Regulation of the diet. This may be done by avoiding concentrated foods and by partaking of vegetables rich enough in coarse fibers to make sufficient bulk to furnish mechanical stimulation to the bowel. Food should be selected which is rich in elements for the formation of organic acids, and for the liberation of gas, thus producing chemical stimulation of the intestines. 3. The liberal use of water, at least six to eight glasses in the twenty-four hours.

As an example, he recommends for breakfast: Fruit, cereal with cream and sugar, but no predigested foods; rye bread with much butter, with a moderate amount of meat and eggs. For dinner: Soup, meat or fish, an abundance of green vegetables such as spinach or cabbage, beets, turnips, potatoes, beans, peas and rye bread and butter, and as dessert a saucer of prunes or pudding. For supper: Cold meat, rye bread and butter, stewed fruit and plums or prunes.

Cancer.

In the *Semana Médica* of Buenos Ayres, R. Berdier and V. de Falabert report the use of subcutaneous or local injections of adrenalin in the treatment of cancer. In the 9 cases reported, the cancer and adjacent swollen glands diminished in size under the influence of injections of .5 mg. of 1 per 1,000 adrenalin, the pains were abolished and the patients gained for a time in weight and strength, although all were advanced cases. The injections were made into the tumor, or, when this was inaccessible, into the arm or over the organ involved. The cancers were in the throat, tongue, esophagus, stomach or cervix. The cessation of pain rendered the previously indispensable morphin unnecessary. In one case conditions were so much improved after 25 local injections of .5 mg. adrenalin in thirty days that the removal of the previously inoperable growth in the cervix was advised. An apparent cure was realized in a case of supposed epithelioma of the nasopharynx. The parts had nearly regained their normal aspect after fifteen injections of the adrenalin into the tumor in less than a month. After this the fluid was injected subcutaneously for a few days, and the patient has been in good health since, having gained more than 2 pounds in two months. In another case a large chancroid on the neck became reduced to a circumference of 2 cm. under the influence of 30 daily injections of .5 mg. each. The other patients all died after an unexpectedly long survival. The authors are convinced that there is some connection between cancer and the sufficiency or insufficiency of the suprarenals.

Medicolegal.

Admissible Declarations of Sick or Injured Person.—The Supreme Court of North Dakota holds, in the case of Puls vs. Grand Lodge of the Ancient Order of United Workmen of North Dakota, that the declarations of a sick or injured person as to the nature, symptoms and effects of the disease or injury under which he is suffering at the time are competent evidence in an action wherein the nature and cause of the malady are in question.

Damages Allowed for Wrongful Taking of Stomach from Dead Body.—The Supreme Court of Wisconsin says that the case of Koerber vs. Patek presented a field for consideration unchartered by any direct decisions in that court. It was alleged in the complaint that the plaintiff was the son and heir of his mother, who died in a hospital, and was by her, before her death, instructed and requested to take charge of her body for purposes of burial, and was the only person interested; that he did so, removing the body to his residence, and proceeding to have the same prepared for burial; that the defendant requested permission to merely examine the stomach of said body, which request being granted, he wilfully, etc., without authority, etc., cut out and carried away the stomach, and refused to return the same on request, whereby burial became necessary without it; that thereby the rights of the plaintiff had been recklessly and wilfully trespassed on, and his feelings greatly injured, so that he had suffered both in mind and in body, to his damage $5,000. The conclusion of the Supreme Court, reached after discussion, protracted, it says, perhaps unduly in deference to the novelty of the question in Wisconsin, and to the earnestness of counsels' argument, is that the complaint stated a good cause of action in favor of the plaintiff, and that the trial court erred in sustaining a demurrer to it.

Visible Marks of Injury—Choosing Treatment.—The Court of Appeals of Colorado says, in United States Casualty Company vs. Hanson, an action on a policy of accident insurance brought by the latter party, that the policy contained numerous conditions, which, not satisfied, would defeat a recovery—among them, a requirement of a visible mark of injury on the body of the insured. But, as to this condition, the court says there was evidence bringing the case within it. A shrinkage of the muscles of the hip and leg and a lameness of the leg were visible marks of the injury, within the authorities. So was the breaking down of the bones at the joint, which was perceptible to digital examination. Another provision of the policy was that the injury received must be the sole cause of the disabled condition of the insured. He was examined by one physician, and by him advised as to the course of treatment, but failed to follow it. It was said that in this he was guilty of negligence, which negligence materially contributed to his subsequent disabled condition, and that, therefore, the injury originally received was not the sole cause of his condition. But the court says that while the insured did not follow the advice of the physician referred to, he did follow the treatment of other physicians, presumably of standing; and the court can not say that the verdict of the jury, in acquitting him of negligence in so doing, should be disturbed.

Liability for Death of Follower Denied Medical Care—Use of Prayer.—The Supreme Judicial Court of Maine says that in the case of State vs. Sandford the latter was tried and convicted on an indictment charging him with manslaughter in causing the death of a youth of 15, named Bartlett, a member of a community or religious sect, who died of diphtheria. It was not claimed by the state that the defendant had the immediate care of Bartlett during his last sickness, nor that it was the defendant's personal duty to attend to his wants, either as to medical remedies or to the supply of necessary and proper food. But the contention of the state was that the defendant exercised such control over those who were in attendance on and caring for Bartlett, that he dominated their wills to such an extent, that his orders were carried out in the treatment of Bartlett by those who were subservient to his will, and whose conduct in this respect, as well as in all others, was subject to his control and authority, and that the neglect complained of in these respects by those who were in attendance on and who did have the care of Bartlett, was the result of the defendant's general or specific directions. The court says that it was necessary for the state to prove its contention in this respect, and for this purpose it thinks that it was entirely competent to introduce evidence of specific instances showing the manner and extent that authority was exercised by the defendant in these instances. As to the contention of the state that the defendant failed to perform a known duty owed by him to Bartlett by not providing medical attendance and medical remedies for the latter in the serious condition in which he then was, the court says that there was no dispute whatever as to the facts, the defendant relying, as an answer to this contention, on an alleged conscientious disbelief in the efficacy of medical remedies, and on a belief that the proper treatment of the sick was by prayer. In relation to this position of the defense the following instruction was requested by the defendant: "Failure to provide medical aid or the attendance of a physician, with resulting death, in the absence of a statute requiring medical aid or the attendance of a physician, if the action is under the bona fide belief that medical aid is not required, and that the proper method of healing is by prayer, is not manslaughter." The trial court had already given this instruction in substance, but had added the following qualifications: "That is, it must be a conscientious disbelief in medicine, a bona fide disbelief, a real disbelief. And if a person having that disbelief in medicine had some other belief, or some other practice, or some other way to help cure the sick, which he honestly believed, it would then be his duty to apply that other method; and so, if he believed in the prayer of faith, he ought to apply that. But if he failed to use the prayer of faith, unless you believe that the lack of it hastened the death, or caused the death of the patient, the omission to use the prayer of faith would not be criminal negligence, because it did not produce any results. On the other hand, if you believe that the omission to use the prayer of faith did hasten the death of Leander Bartlett, and if that was the honest belief of the defendant, and he failed, knowing the circumstances, knowing his duty, why it would constitute a basis for manslaughter, would be evidence of negligence." The Supreme Judicial Court holds that the instruction given as *qualifications* to the instructions requested by the defendant were erroneous; that under these instructions the conviction or acquittal of the defendant would depend, not on the jury's finding as to the truth of some controverted fact about which there was no evidence for and against, not as to the truth of some scientific theory, as to which those specially qualified by study and experience had testified, questions which, of course, must be submitted to the determination of the jury, but on the belief of the individual members of the jury on the question of the efficacy of prayer as a means of cure for the sick. The guilt or innocence of any person accused of crime, whatever his belief may be in this respect, and the result of a criminal trial, should not depend on the beliefs of the members of a jury on the question of the efficacy of prayer as a means of cure for the sick, or on their religious belief in any other respect. Questions of fact, and even questions as to the truth of scientific theories, must be submitted to the determination of juries; but the questions as to the nature of one's legal duties and the extent of his legal responsibilities, both civil and criminal, must be governed by general rules of law, which will apply to all alike, and which will control the action of juries, so that one result only can follow from their findings of fact on the issues of fact involved. It may be true that where a person is charged with responsibility of the death of another because of his failure and neglect to procure medical attendance or to allow the use of medical remedies, and such person has a conscientious disbelief in the efficacy of such treatment and the use of such remedies, but does believe in the value of some other form of treatment, if any there be, which is recognized by some school of science as proper under the circumstances of the case, that it would be his duty to resort to this recognized form of treatment believed in by him, and that a failure to do so might be evidence of neglect on his part sufficient to hold him criminally liable for the death of a person which resulted from such failure. A suggestion made in Reg. vs. Wagstaffe, 10 Cox, C. C. 530, aptly illustrates this court's views in regard to the responsibility of a person who entertained a particular belief as to the proper method for the treatment of the sick. Suppose a person charged with a neglect of duty in the respect which we have been considering believed conscientiously that the only efficient remedy for a person afflicted with disease was to take the person to a particular shrine, could it be that a failure to do this would sustain a charge of manslaughter, even if the jury believed that this failure either caused or accelerated the death of the one diseased? But a person may as conscientiously believe in this remedy as in the efficacy of prayer for the sick, and, while both beliefs may be equally entitled to respect, the conviction of a person in any case should not depend on whether the jury before which he is tried entertains the one belief or the other, or neither.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 11.

1 *Medical Treatment of Gastric Ulcer. F. P. Henry, Philadelphia.
2 Advances in the Physiology and Pathology of the Pancreas, and Their Application to the Diagnosis of Pancreatic Diseases. J. C. Hemmeter, Baltimore.
3 *Consideration of Fibroid Tumors of the Uterus, based on a Study of a Series of 210 Cases Treated Surgically. J. C. Webster, Chicago.
4 *Tuberculosis of the Gastrointestinal Tract: Report of a Case of Perforation and Partial Stenosis of the Bowels. J. A. Lichty, Pittsburg.
5 *Iodin in the Treatment of Postoperative Sepsis. J. H. Burtenshaw, New York.
6 *Etiology and Treatment of Acute and Chronic Rheumatism. G. M. Illman, Philadelphia.

1. **Medical Treatment of Gastric Ulcer.**—Henry has employed Leube's method in modified form in a sufficient number of cases to convince him of its efficacy. His modification consists in nourishing the patient during the first week of treatment, either entirely or partially, by rectal enemata, and in the *pro re nata* employment of opium and its derivatives. He also emphasizes the importance of system in the treatment of this and of any other affection; a system which is sufficiently elastic to adapt itself to the individual case.

3.—See The Journal, March 18, p. 900.

4. **Tuberculosis of the Gastrointestinal Tract.**—The points of interest in the case reported by Lichty are: The mode of infection, which was rather doubtful, being either primary in the alimentary canal or secondary to a pulmonary lesion; and the fact that the disease was contracted from living with a tuberculous patient.

5. **Iodin and Postoperative Sepsis.**—Although his own experience with iodin in these cases has been disappointing, yet Burtenshaw is convinced that further development of this treatment as outlined by Alloway and Pryor, in the near future will yield brilliant results. Of 3 cases of postoperative sepsis in his practice 2 resulted fatally. The first case was probably due to the use of defective ligatures, but the patient recovered, a result which he attributes more to the degree of infection and to her robust constitution than to the curative measures employed. The infection in one of the fatal cases was traceable to the unavoidable soiling of the peritoneum from the rupture, during operation, of an enormous pelvic abscess; in the other case the source of infection was undiscoverable. It was in this case that the iodin treatment was given its most extended trial, and with absolutely negative result.

6. **Rheumatism.**—In this paper Illman points out the great necessity for prompt treatment of even slight rheumatic manifestations, based on the assumption that the gastrointestinal tract is closely associated with the causation of rheumatism.

Medical Record, New York.

March 11.

7 *Treatment of Epidemic Cerebrospinal Meningitis by Diphtheria Antitoxin. E. Waitzfelder, New York.
8 Chronic Myositis Rheumatica and Its Treatment by Massage. G. Norstrom, New York.
9 *Radical Operation for the Removal of a Bullet Weighing 70 Grains, Embedded in the Internal Wall of the Middle Ear, with Decided Improvement in the Subjective Symptoms. M. D. Lederman, New York.
10 *Aortic Regurgitation with Chronic Miliary Tuberculosis in a Man 22 Years Old. M. Leale, New York.
11 *Case of Cicatricial Stricture of the Esophagus. A. B. Atherton, Fredericton, N. B., Can.

7. **Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis.**—Based on the antagonism existing between the Klebs-Loeffler bacillus and the *Diplococcus meningitidis*, Waitzfelder treated 17 cases of epidemic cerebrospinal meningitis by injecting diphtheria antitoxin, from 6,000 to 10,000 units at one dose, this being repeated as often as was found necessary. Five patients recovered completely, 3 died and 9 are still under observation. Of the latter 5 give every promise of a speedy recovery; the other 4 are still in a serious condition. The greater number of cases were severe in their onset, and the evidence of profound constitutional infection was well marked. It was in this kind of cases that he observed the best results; within two days delirium or coma abated or disappeared; the pulse and temperature became more nearly normal; the tongue more moist, and a general improvement in all the symptoms was manifested. In no case was consciousness absent after three days. The dose given was 6,000 units to children less than 5 years of age, 8,000 to those between 5 and 12, and 10,000 to adults. This amount is injected under the scapula on alternate days. In a few cases an antitoxin rash developed, but never was of much moment. In fact, not a single bad symptom developed as the result of the administration of the antitoxin. From a study of these cases Waitzfelder is led to believe that a larger dose of antitoxin is necessary than is usually given in diphtheria, and that it should be repeated daily until urgent symptoms abate (not to the exclusion of lumbar puncture, which should be made for symptoms indicating cerebrospinal pressure). With the subsidence of delirium or coma, a lessening of the rigidity of the neck, of headache and photophobia, he advises that the amount of antitoxin be diminished, but its use should be continued at longer intervals, until all central nervous symptoms have subsided. He is

fully convinced that this treatment has brought about a diminution of mortality and an absence of sequelæ.

9. **Operation on Ear for Removal of Bullet.**—The interesting feature in Lederman's case is the presence of a foreign body (32-caliber bullet) lodged in the internal wall of the middle ear for a period of over three years, causing chronic suppuration, tissue proliferation, facial paralysis and marked disturbance in equilibrium without more serious complications. The treatment was satisfactory in every way, the facial paralysis slowly improving, and the patient being able to walk quite well without support. Two weeks after operation the ordinary speaking voice was plainly heard in the ear with the good ear closed.

10. **Aortic Regurgitation and Chronic Miliary Tuberculosis.**—The interest in this case centers itself about the combination of aortic regurgitation and chronic miliary tuberculosis, and the occurrence of the former in so young a subject. Leale found it impossible to say whether the valvular lesion was secondary to the miliary tuberculosis, being part of the tubercular process, forming tubercles on or near the segments of the valve, or whether it was an entirely distinct pathologic process.

11. **Cicatricial Stricture of Esophagus.**—Atherton describes a case of cicatricial stricture of the lower end of the esophagus, the result of swallowing some lye by mistake. When first seen, the stricture admitted only an olivary French bougie 2 millimeters in diameter. It became possible, by gradual dilatation, to introduce an instrument of twice this size, but after this no further stretching could be effected. The stomach was opened and the stricture softened by the use of the string and bougie procedure of Abbe, after which gradual dilatation became possible, so that a short red-rubber bougie, 1 cm. in diameter, could be *permanently worn*. The upper end of this bougie lay at the junction of the pharynx and esophagus, and was secured by a silk thread fastened to a tooth or to one ear. One year has elapsed since the operation, and the patient is obliged to continue the daily use of the bougie, as otherwise the stricture soon contracts.

Boston Medical and Surgical Journal.

March 9.

12 *Clinical Report of 75 Cases of Arthritis Deformans (Chronic Non-tubercular Arthritis). F. L. Richardson, Boston.
13 *Complemental Relations of Glycuronic and Ethereal Sulphuric Acids and Their Pairlings in Auto-intoxication, Typhoid Fever and Cancer. A. E. Austin and E. W. Barron, Boston.
14 Dangers from the "X-ray Atmosphere" to the Operator. Their Prevention. H. W. Van Allen, Springfield, Mass.

12. **Arthritis Deformans.**—The clinical study of 75 cases of arthritis deformans made by Richardson represents one of the preliminary steps in the study of that disease undertaken in the surgical laboratory of the Harvard Medical School. Of these cases, 74 were plainly one of the various types of arthritis deformans, including one case of ankylosing arthritis in an adult woman. There was one case of chronic arthritis due to gout, which, because of its clinical course, was considered during life as a deforming arthritis. Of the 74 patients with arthritis deformans, 26 were men and 48 women. Seventeen patients were single and the remaining 58 were or had been married. The greatest number engaged in one occupation was 31, doing housework; next, 11 laborers, 6 cooks, and 5 laundry workers. In only 7 cases did the patient know of any "rheumatism" in the family. Five patients gave a history of acute rheumatism. In 9 cases, the arthritis was supposed to be of gonorrheal origin. A history of syphilis was found in two men and in two women. The onset of the trouble was acute in 16; subacute in 8; insidious in 35, and unknown in 16. The joints first involved were the wrist and hand in 15; elbow in 1; shoulder in 10; spine in 2; hips in 1; knees in 25; ankles and feet in 6; more than one set of joints in 4; unknown in 10. In 60 per cent. of the cases the percentage of hemoglobin was between 70 and 80, without any marked diminution in the number of erythrocytes. In 1 case the disease was associated with diabetes of a severe type. In several cases there was chronic nephritis. In no case was uric acid found markedly in excess, and in many cases it was found relatively diminished. Richardson agrees with Bradford that the analogy between arthritis deformans and arteriosclerosis appears to be a very close one. In arteriosclerosis the causes to which the disease has been ascribed are innumerable and the manifestations may be widely varied; but because of these numerous manifestations it can not be said that we are dealing with many diseases. That the disease often is the result of some general alteration in the body metabolism seems possible.

13. **Complemental Relations of Glycuronic and Ethereal Sulphuric Acids.**—Austin and Barron summarize the results of a series of experiments carried on by them as follows: Aromatic bodies unite both with ethereal sulphuric acid and glycuronic acid, which apparently have a complemental relation to each other, but the former is always first saturated before union commences with the second. The glycuronic acid apparently varies very decidedly in amount, but it is not necessarily associated with the increase of the pairing body, nor with the diminution of oxidation. Furthermore, there is always present an excess of sulphuric acid beyond the demands of the pairing body.

New York Medical Journal.

March 11.

15 Subcutaneous Injuries of the Abdominal Walls and Viscera. (To be concluded.) Daniel N. Eisendrath, Chicago.
16 *Unusually Severe Case of Acute Chorea Successfully Treated with Apomorphin. M. G. Tull, Philadelphia.
17 Examination of the Feces. I. S. Wile, New York.
18 The So-called Atypical Forms of Gastric Ulcer. J. Kaufmann, New York.
19 *Remarks on the Results of X-ray Treatment in Several Cases of Carcinoma of the Uterus. S. Tousey, New York.
20 *Unique Case of Appendicitis in a Child Aged Fourteen Months. L. W. Glazebrook, Washington, D. C.
21 *Classification for Cases of Pulmonary Tuberculosis and Phthisis. K. Von Ruck, Asheville, N. C.

16. **Apomorphin in Chorea.**—All other methods of treatment proving futile, Tull began the use of apomorphin in an unusually severe case of chorea occurring in a young girl, aged 15 years. One-fortieth of a grain of apomorphin was administered hypodermically. Within three minutes the incessant motion had ceased, the muscles were relaxed, and the patient slept peacefully and quietly. This was followed up with 1/20 of a grain by mouth, every three hours, combined with arsenic. At no time was there any sign of nausea or vomiting. The patient made a steady improvement, with no return of the severer symptoms.

19. **X-Ray in Carcinoma of Uterus.**—Tousey cites a case of carcinoma of the uterus which was remarkably benefited by *x*-ray treatment. The treatment consisted in allowing the *x*-ray to shine through the uncovered abdominal wall, and also through Nott's speculum, and in the application of high-frequency currents. The current used was the 110 volt direct current, with a liquid interrupter of the Simon's type. An 8-inch coil, a 40 cm. tube and a rheostat which cuts the currents down to about 4½ amperes were also employed. The vacuum in the tube was adjusted for each treatment to correspond with an internal resistance of about two and a half inches, and a penetration of two or three layers in the author's radiometer. The distance was 9 inches from the anode of the tube to the nearest surface of the patient; time of exposure, about five minutes over the abdomen and five minutes in the vagina. The high-frequency currents were taken directly from one pole of the *x*-ray coil, by means of an insulated cord passing from the coil to an insulated handle by which the operator held a glass vacuum electrode, which was placed in contact with the skin. The patient's life was prolonged for a year, and death resulted from a serious gastric disturbance which did not seem to be of a cancerous nature. In a second case cited the results were very similar to those obtained in the first case.

20. **Appendicitis in Child Aged Fourteen Months.**—Glazebrook's patient died after an illness lasting about three and one-half hours. The symptoms were those usually met with in surgical shock. At the autopsy the large omentum was found adherent to the vermiform appendix midway between

the cecum and its tip. To the left and posterior to this point about one dram of green pus was found which was escaping from a small perforation of the appendix. On opening the appendix an ordinary black mourning pin was found, the head of the pin occupying the center of the perforation in the appendix. Immediately around the seat of rupture the parts were gangrenous.

21. **Classification of Pulmonary Tuberculosis.**—A classification of pulmonary tuberculosis and phthisis on a clinical basis is offered by von Ruck. It reflects the gravity of the cases grouped together, and has the great additional advantage that it requires no extraordinary skill and experience in placing a given case in its proper group. The second classification given by him explains itself.

CLASSIFICATION OF STAGES FOR CASES OF PULMONARY TUBERCULOSIS AND PHTHISIS.

CHRONIC PULMONARY TUBERCULOSIS.

a. Inactive, closed tuberculosis, latent form, free from fever, reacting to tuberculin, with varied extent of physical signs.

b. Active, closed tuberculosis, with mild tuberculous fever (100.5 F. maximum); otherwise same as *a.*

PULMONARY PHTHISIS.

Class I. Non-febrile Cases.	*Class II. Febrile Cases.*
First Stage.—*a.* Inactive, initial phthisis, without demonstrable cavity formation, with bacillary sputum; total quantity not exceeding ½ ounce in 24 hours; passive secondary infection; with or without mild complications on the part of pleura. Temperature normal to 99 F.	*First Stage.*—*b.* Active, initial phthisis, with moderate tuberculous fever, or a combination of the tuberculous with that of subacute secondary infection. [illegible] exceeding ½ [illegible] or with- [illegible] on part of pleura. Temperature not exceeding 101.5 F.
Second Stage.—*a.* Inactive phthisis, with single, small, demonstrable cavity formation. Expectoration not exceeding 1 ounce in 24 hours. Passive secondary infection; with or without mild complications on part of larynx, pleura or both. Temperature normal to 99.2 F.	*Second Stage.*—*b.* Active phthisis, with tuberculous fever, or combined secondary fever; demonstrable cavity formation. Expectoration not exceeding 1 ounce in 24 hours. Mild complications on part of pleura or larynx or both. Temperature not exceeding 102.5 F.
Third Stage.—*a.* Inactive, advanced, cavernous phthisis, with large or multiple cavity formation. Expectoration exceeding 1 ounce in 24 hours. Passive secondary infection; serious complications, tuberculous or otherwise, on the part of larynx, pleura, intestine, or other organs. Temperature subnormal to 99.5 F.	*Third Stage.*—*b.* Active, advanced, cavernous phthisis, with tuberculous or secondary fever of any degree. Large single or multiple cavity formation. Expectoration exceeding 1 ounce in 24 hours. Complications same as under *a,* or caseous pneumonia, diffused mixed infection, acute miliary disseminations.

CLASSIFICATION OF RESULTS OF TREATMENT OF PULMONARY TUBERCULOSIS AND PHTHISIS.

Cured.—Patients free from all subjective symptoms, without elevation of temperature, without cough or expectoration. Physical signs absent, or indicative of connective tissue changes or cicatrization. General health restored. Tuberculin test applied three months or later after discontinuance of treatment must have proved negative, or above conditions must have been maintained at least for two years after discharge.

Apparently Cured.—Same condition as above, maintained at least for three months after discontinuance of treatment.

Disease Arrested.—Decided retrogressive changes in the physical signs, coexisting with corresponding amelioration of symptoms, only slight cough remaining, expectoration not exceeding 2 drams in twenty-four hours, still containing tubercle bacilli. General health to be approaching normal state. Temperature must be practically normal, not exceeding 99 F. Such condition must have been maintained for three months or longer.

Greatly Improved.—Symptoms and physical signs present on admission must show material reduction, especially cough, expectoration and fever. Weight and strength, if previously deficient, must show decided increase.

Improved.—Symptoms, such as cough, expectoration and fever, have grown less. No loss in weight or gaining on discharge.

Stationary.—No material change in patient's condition. No loss in weight.

Progressive.—Symptoms and physical signs are increased.

Medical News, New York.

March 11.

22 Uric Acid—Its Influence in Gout. C. C. Ransom, New York.
23 Objective and Subjective Symptoms of Surgical Diseases of the Kidney. C. L. Gibson, New York.
24 Laboratory Findings in Surgical Diseases of the Kidney. F. E. Sondern, New York.
25 The X-ray in Kidney Disease. L. G. Cole, New York.
26 Cystoscope and Ureter Catheter in the Diagnosis of Surgical Diseases of the Kidney and Ureter. F. T. Brown, New York.
27 Exploratory Operations Relating to the Kidney. H. Lilienthal, New York.

Lancet-Clinic, Cincinnati.

March 11.

28 Public Care and Treatment of Inebriety. T. D. Crothers, Hartford, Conn.
29 Two Etiologic Factors in Pelvic Diseases in Women, Their Prevalence and Prevention. J. H. Firestone, Freeport, Ill.
30 Gastroenterostomy. W. H. Wathen, Louisville, Ky.

St. Louis Medical Review.

March 4.

31 Diagnosis and Treatment of Gallstones. A. Dixon, Henderson, Ky.
32 Constipation. I. J. Moyer, Pittsburg.
33 Control of Municipal Medical Institutions. What Experience Has Shown. G. Homan, St. Louis.

Journal of the Association of Military Surgeons, Carlisle, Pa.

March.

34 First Aid in Naval Warfare. J. C. Wise.
35 Principles of the New Austro-Hungarian Sanitary Regulations for War. J. Steiner.
36 *Gymnastics and Athletics. V. Havard.
37 Malingering; Report of Cases. S. M. De Loffre.

36. **Gymnastics and Athletics.**—A very careful study of the effect of gymnastics and athletics, especially football, on the human economy, is made by Havard, who says that unless the football methods now prevailing are substantially modified, it would be greatly to the benefit of college students were the game eradicated. He found that football is detrimental to studies. As regards mere physical development, better results can be attained by graded gymnastics and less strenuous games. It is more or less dangerous to the body, and in order to reduce liability to injuries and the possibility of disability in after-life, certain important conditions must be observed. Careful training is absolutely necessary in order to develop the highest degree of efficiency and endurance without harm to any of the organs. Of the total number of football players (159) graduated at West Point since 1892, 5 died of disease, representing a mortality of 3.14 per thousand. During the same period of years the mortality from disease for all graduates, 769 in number, was 19, representing a ratio of 2.47 per thousand. Hence the effect of athletic exercises, if any at all, is rather to increase than to diminish mortality in after life. To the 149 living members, a circular letter was sent inquiring as to their condition. To this letter 96 answers were received, all reporting their present health as good, very good or excellent, with 4 exceptions; of these, 3 report their health as bad, attributing it to long tropical service, the fourth reports his health as only fair, because of cardiac enlargement. Fifty-one out of the 96 received an injury of sufficient gravity to disable them more than a day or two. Six are still reminded of injuries received while playing football. The effect on the heart is mentioned in only 2 letters; one reports "slight enlargement" and health only fair; the other, that "a former murmur which might have been due to athletics has disappeared." Havard found that the football player stands almost exactly in the center of his class as far as scholarship is concerned. For the entire number of graduates, 769, the percentage of honor graduates is 15.40, while for football players it is 14.46. Havard is decidedly not of the opinion that football is beneficial to scholarship.

Journal of Experimental Medicine.

Vol. vi, Nos. 4-5-6.

38 *Studies in Hemolysis with Special Reference to the Properties of the Blood on Body Fluids of Human Beings. H. T. Marshall.
39 Epithelioma Adamantinum. H. S. Steensland, Syracuse.
40 *Bacteriology of Bronchopneumonia and Globular Pneumonia in Infancy. M. Wollstein, New York.
41 Malignant Teratoma of the Perineum. R. H. Whitehead, Chapelhill, N. C.
42 Dermatomyositis, with Report of Case Presenting a Rare Muscle Anomaly. W. R. Steiner, Hartford, Conn.
43 Further Observations on a Pathogenic Mould, Formerly Described as a Protozoan (Coccioides Pyogenes). W. Ophüls, San Francisco.
44 *Toxic Effect of Formaldehyd and Formalin. M. H. Fischer, San Francisco.
45 Bacillus Mortiferus. N. M. Harris, Baltimore.

Vol. vii, No. 1.

46 *Changes in the Heart Rates and Blood Pressures Resulting from Severe Hemorrhage and Subsequent Infusion of Sodium Bicarbonate. E. M. Dawson, Baltimore.
47 "Red-Leg"—An Infectious Disease of Frogs. H. Emerson and C. Norris, New York.
48 The Rate of Absorption from Intramuscular Tissue. S. J. Meltzer and J. Auer, New York.
49 Color Reactions of Naphthaquinone Sodium-Monosulphinate and Some of Their Biologic Applications. C. A. Herter, New York.

50 The Preparation of Salt-free Culture Media and the Growth of Bacteria on Them. A. E. Taylor, San Francisco.

38. **Studies in Hemolysis.**—Studying the comparison of the receptors of the red blood corpuscles of man and of the monkey, Marshall found that goat, sheep, ox, goose and rabbit serum affect monkey blood to almost the same extent that they do human blood, and that human, rabbit and guinea-pig serum fail to produce hemolysis of monkey blood or of human blood; the two last mentioned, however, behaving very similarly in the presence of normal, active hemolysis. With reference to the behavior of human blood corpuscles in the presence of serum from various animals, and the hemolytic properties of normal human serum, he found that human serum has complement available for a variety of normal and specific amboceptors, but that the complement differs in amount in various specimens of human serum. The complement strength of different specimens of human serum for different amboceptors has no definite ratio, and the complements for different amboceptors may vary independently. Concerning the hemolytic properties of human transudates and exudates, he ascertained that the body fluids examined contained complements capable of re-activating various amboceptors; but the re-activating power is not equal in different fluids. The complement strength for a given lysin may vary in several fluids independently of the complement strength for other lysins. The complement action of the body fluids seems to be more pronounced than that of the human serum examined. No amboceptor was found by Marshall which was available for human blood.

40. **Bacteriology of Pneumonia in Infancy.**—Wollstein describes the results obtained from observations made with the view of determining the relationship between the extent of the pneumonic areas and the variety of bacteria present and the difference, if any, between the bacteriology of the primary and of the secondary infections. In 100 cases examined, the pneumococcus was present in 67; of these, 25 were primary and 42 secondary pneumonias. While the pneumococcus appeared in 76 per cent. of the primary cases, it occurred in only 63 per cent. of the secondary cases; and while it was present in pure culture in 42 per cent. of the primary cases, it was found alone in only 15 per cent. of the secondary cases. In the 67 cases showing the pneumococcus, there was inflammation of the pleura in 51 per cent. (34 cases), the lesion being an acute fibrinous exudate in 22 instances (13 secondary, 9 primary), acute purulent exudate (empyema) in 4 instances (2 primary and 2 secondary), and a fibrinopurulent one in 8 instances (2 primary, 6 secondary). The cases from which the pneumococcus was absent (33) showed pleurisy in one-third of the number, the inflammation being of the acute fibrinous variety in 9 instances (3 primary and 6 secondary). The percentage of empyema cases was exactly the same (6 per cent.) in both varieties. Purulent infiltrations of the lungs occurred in 7 cases, and all these contained the pneumococcus either alone or combined with the streptococcus (3 instances) and the *Staphylococcus pyogenes aureus* (1 instance), Small pulmonary abscesses existed in 7 cases. In 5 of these the pneumococcus occurred twice combined with the tubercle bacillus, once with *B. pyocyaneus* and once with the streptococcus. In 2 instances the streptococcus was present alone. Of the 100 cases, 45 were coalescent with the pneumococcus present in 33 instances, or 73 per cent. In 31 of 55 focalized cases, or 56 per cent., the pneumococcus was also found. The cases of primary bronchopneumonia showed a larger percentage of pneumococcus infections than the secondary cases; and the pneumococcus cases showed a larger percentage of inflammation of the pleura, and a greater tendency to purulent infiltration and abscess formation.

44. **Toxic Effects of Formaldehyd and Formalin.**—A very careful study was made by Fischer to determine the toxic effects of formic aldehyd, known as formaldehyd, and formalin, a 40 per cent. solution of formaldehyd in water. He found that the inhalation of formaldehyd gas, even in small quantities, is followed by bronchitis and pneumonia, the latter being due to the inhalation of the gas and not to secondary infection. The introduction of formalin into the stomach was followed by the production of a gastritis which varied greatly in character. In some instances the duodenum and upper jejunum were also involved in the inflammatory process. Intraperitoneal injections of formalin as dilute as 1 to 1,000, caused peritonitis of a fibrino-hemorrhagic character. Formalin exercises a destructive action on all organs with which it comes in contact and causes inflammation in these organs. The lethal dose of formalin when injected intraperitoneally, into guinea-pigs, is approximately 2 c.c. of a 1 to 1,000 formalin for each 100 grams of body weight. The injection of formalin into the lungs was followed by pneumonia and bronchitis. The inflammation which follows subcutaneous injections of formalin is characterized by intense exudation. Injected into the muscles it produces myositis; injected into the anterior chamber of the eye, it causes accumulation of an exudate containing leucocytes and fibrin; and when dropped into the conjunctival sac, iritis follows and may be severe enough to destroy the eye. Formalin in whatever way introduced into the body is absorbed, and is then capable of producing lesions in the parenchymatous organs, such as cloudy swelling and focal necroses. The leucocytic infiltration which follows the introduction of formalin is characteristic. The eosinophiles are the first leucocytes to appear; these are followed by the other polynuclear leucocytes, the large and small mononuclear leucocytes being the last to appear. Animals subjected to chronic poisoning with formalin administered by intraperitoneal injection developed fibrinous peritonitis, associated with marked eosinophilia, cloudy swelling, fatty degeneration, focal necrosis and leucocytic infiltration in the kidneys and liver.

46. **Sodium Bicarbonate Infusions in Severe Hemorrhages.**—The results of experiments described by Dawson indicate that under certain conditions the addition of sodium bicarbonate to the infused fluid may be expected to have a beneficial action. In extreme cases of shock due to loss of blood, the addition of from 0.5 to 1 per cent. of the bicarbonate to the solution of 0.8 per cent. sodium chlorid may be of advantage in two respects. In the first place, the rise in all the pressures, especially in the diastolic pressure, is more pronounced than when the pure chlorid is used, and consequently, the circulation (as far as the pressures are concerned) can be restored more nearly to the normal condition; secondly, the quantity of fluid required is smaller than is the case with the pure chlorid, and hence the greater is the rapidity with which the solution can be hurried into the circulation, a matter of some importance in desperate cases. Dawson mentions one possibility which ought not to be overlooked in the employment of bicarbonate of soda—that of overworking the heart. Some experiments of a series not yet completed show that very strong solution of sodium carbonate and bicarbonate act as cardiac stimulants to an astounding degree. Therefore, it is the duty of the physician to decide in each case whether a cardiac stimulant is or is not contraindicated. Dawson considers it a rational procedure to begin an intravenous infusion with a solution containing bicarbonate, and in this way to hurry the pressures upward, so to speak, and then, when the pressures reach a considerable height, the bicarbonate might, if thought advisable, readily be omitted from subsequent infusions which might be required to maintain the pressure at the desired level.

Journal of the Michigan State Medical Society, Detroit.

March.

51 Physiologic Therapeutics in Gynecology. J. H. Kellogg, Battle Creek.
52 *Removal of Vermiform Appendix and Treatment of Stump. A. McLean, Detroit.
53 Tracheotomy. J. A. Heasley, Grand Rapids.
54 Cancer of the Rectum. J. A. McMillan, Detroit.
55 Case of Colitis with Treatment. F. H. Brown, Newaygo, Mich.

52. **Appendicectomy.**—McLean describes a method which he has used with very satisfactory results in over 75 cases. The appendix is freed from its mesentery back to near the base. A strong silk ligature is placed around the appendix at the

Archives of Otology, New Rochelle, N. Y.

February.

101 Case of Temporo-sphenoidal Abscess, with Streptococcus Infection; Operation and Recovery. F. M. Stephens, New York.
102 Two Cases of Temporo-sphenoidal Abscess. Operation, Recovery. R. Lewis, Jr.
103 Three Cases of Laternal Sinus Thrombosis. R. Lewis, Jr.
104 Radical Operation in Chronic Middle-ear Suppuration. E. B. Dench, New York.
105 Double Mastoiditis, Followed by Diphtheritic Exudation with Fatal Result. H. Horlbeck, Columbia, S. C.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

February 25.

1 Multiple Disease of Joints in a Young Child. W. H. White.
2 *Acute Lymphemia in a Child. E. J. McWeeney and D. J. Farnan, Dublin.
3 *Id. E. J. McWeeney, Dublin.
4 Acute Lymphatic Leukemia. McCrae, Baltimore.
5 *Id. W. D. Donnan.
6 Microscopic Examination of Bone Marrow. C. P. Jones.
7 Clinical Methods of Enumerating Leucocytes. E. Turton.

2. **Acute Lymphemia.**—McWeeney and Farnan report a case of acute lymphemia occurring in a female child, 3 years of age, some time after an attack of whooping cough, the only illness, other than the lymphemia, the child had had. The blood count showed 1,540,000 red corpuscles and 136,400 white corpuscles. The percentages of white cells in the differential count were as follows: Large hyaline mononuclears, 65 per cent.; smaller hyaline mononuclears, 32 per cent.; polynuclear neutrophiles, 1.3 per cent.; polynuclear eosinophiles, 0.5 per cent.; neutrophile myelocytes, 0.6 per cent., and eosinophile myelocytes, 0.6 per cent. The hemoglobin was not estimated. The child died two days later. An autopsy was not permitted. Clinically the case resembled one of Hodgkin's disease, but an examination of a fresh blood preparation settled the diagnosis. The findings agreed with the hemocytic picture of acute leukemia in the following points: 1, Enormous preponderance of hyaline mononuclear cells; 2, rarity of polynuclear neutrophiles; 3, presence of myelocytes in very small numbers; 4, rarity of both varieties of nucleated red corpuscles.

3. **Id.**—A second case of acute lymphemia is reported by McWeeney. This case was typical in the youth of the patient (9 years), the duration of the disease (9 weeks), the moderate enlargement of the spleen and lymph glands; the clinical course, characterized by fever, hemorrhages and increased uric acid excretion; the predominance in the blood of large mononuclear cells with hyaline basophile protoplasm; the complete destruction or suppression of the myeloid element in the bone marrow, and the consequent total absence of granule cells from the blood. Exceptional features in the case were the severe and rapidly progressive anemia, the reds falling from 2,000,000 to 820,000 within three weeks; the large proportion of leucocytes to erythrocytes (5.3:1); the large number of lymphocytes (700,000), and the great enlargement of the spleen. In view of the abnormal activity of the lymphoid tissues throughout the body, and the flooding of the blood and tissues, with their products, the lymphocytes, McWeeney is inclined to regard acute leukemia as a primary disease of lymphoid tissue—a disease with distinct affinities to the malignant tumors.

5. **Id.**—The points of interest in the case reported by Donnan were: 1, The complete absence of any palpable lymphatic enlargement, coupled with a moderate amount of splenic hyperplasia; 2, the exceedingly rapid course, six weeks, with acute symptoms coming on only six days before death; 3, profound anemia; 4, the presence of a purpuric eruption on the body as virtually the only sign for several weeks. The acute symptoms were initiated by a severe attack of epistaxis.

The Lancet, London.

February 25.

8 Peritonitis. A Bacteriologic Study. L. S. Dudgeon and P. W. G. Sargent.
9 Shifting Dullness and Its Importance in Connection with Surgical Diseases. R. J. Godlee, London.
10 *Peculiar Form of Chronic Hyperplasia of the Mucous Membranes of the Upper Respiratory Tract. F. Semon.
11 Pneumonia with Infective Endocarditis and Meningitis. D. M. Livingstone and A. Jubb, Glasgow.
12 *Acute Septicemia Treated with Antistreptococcic Serum; Recovery. G. H. Cressey.
13 Mental Symptoms Associated with Heart Disease. H. Kerr.
14 *Properitoneal or Abdominal Hydrocele. J. Lewtas.
15 *Total Enucleation of the Prostate in Advanced Old Age. P. J. Freyer, London.
16 *Enelectrolysis; an Improved Method of Operating on Superfluous Hairs. B. Squire.
17 Laceration of the Abdominal Wall the Result of Bear-bite Simulating an Abdominal Tumor. V. S. Umachigi.

10. **Chronic Hyperplasia of Respiratory Mucous Membranes.**—Semon reports 7 cases of a hitherto apparently undescribed form of chronic hyperplasia of the mucous membranes of the nasopharynx, pharynx and larynx. Although there was some similarity in the clinical appearances of all these cases, the cause of the peculiar swelling was in 3 cases determined to be tuberculosis, syphilis or acute septic infection. The remaining 4 cases were not associated, so far as could be judged, with the presence of any specific micro-organism. The mucous membrane involved is uniformly thickened and presents a peculiar yellowish, shiny, somewhat gelatinous looking appearance, resembling that of a lardaceous kidney. The condition shows no tendency toward a destructive metamorphosis. Treatment is of no avail. Microscopically the condition presents itself as a chronic hyperplasia of the interstitial tissue of the parts involved, of apparently progressive character, with no tendency toward degeneration, and unassociated with the presence of any specific micro-organism. The investing epithelium is everywhere intact and normal. The lesion presents none of the structural features of tuberculosis, syphilis or rhinoscleroma. The overgrowth of connective tissue has no relationship with a neurofibromatous pachydermia since the nerves are not involved in the general fibromatosis. The enlargement is not due to a dilatation of lymph spaces, nor does it bear relegating to the group of angioneurotic edemas. The complete absence of chronic arterial change removes any relationship between the disease and erythromelalgia. The histologic changes approach most nearly to those met with in hyperplastic rhinitis in what has been called its secondary stage.

12. **Antistreptococcic Serum in Acute Septicemia.**—The infection in this case followed an injury of the great toe. The symptoms of acute sepsis developed rapidly, the temperature running as high as 105 and the pulse 106. On the eighth day 20 cm. of antistreptococcic serum were given hypodermically and within one hour the temperature had fallen 3½ degrees. On the following day 10 c.c. of serum were injected, this dose being repeated on the next day. In fact, during this period of acute sepsis the antistreptococcic serum was used pretty regularly until the skin became exquisitely tender. The case was complicated by the formation of superficial abscesses, a pleural pneumonia and an empyema. Convalescence was rapid and uneventful.

14. **Abdominal Hydrocele.**—Lewtas reports the case of a man, aged 38, who was suffering from what appeared to be a reducible inguinal hernia on the right side. The usual incision was made and on reaching the sac it seemed darker than usual and was obviously distended with fluid. A pale, clear, straw-colored fluid was evacuated, but continued to flow until the amount far exceeded the capacity of the sac. The flow ceased when two and a half pints had escaped. Neither intestine nor omentum were found in the canal, and on passing the finger through the ring nothing could be felt except the sides of a smooth-walled cavity, the limits of which could not be reached. The handle of a retractor entered for a distance of about 10 inches in directions radiating outward and inward from the internal ring. The left index finger pushed into the sac, while pressure was made on the abdomen with the other hand, could feel the under surface of the liver and of the umbilicus. This large cavity communicated at the internal ring with the sac outside, which extended to about an inch beyond the external ring, where it ended in a blind pouch. This extra-abdominal sac was separated from its connections and cut off close to the internal ring. A gauze drain was passed

through the internal ring into the sac within the abdomen, and the skin incision was then closed. The sac did not fill again, and at the end of a month it was obliterated.

15. Enucleation of Prostate in Advanced Age.—Freyer has performed his operation of total enucleation of the prostate on 188 patients, 9 of whom were octogenarians and one bordering on this period of life, aged 79 years. Nine of them are alive at the present time, most of them in excellent health, and all able to retain and to pass urine normally. The remaining patient, in whom the prostate was carcinomatous, after complete recovery from the operation, died suddenly from heart disease. From these facts Freyer concludes that age has little influence on the results of the operation, provided that the vital organs (particularly the kidneys) are unaffected or fairly sound. Nevertheless the operation should not be undertaken in such cases unless the most careful and tender nursing is available as well as the constant supervision of the surgeon.

16. Enelectrolysis.—The usual method of removing hair by electrolysis has been improved on by Squire. He pulls out the hair first and then passes the needle into the hole left by the extraction of the hair. This renders the destruction of the skin, that necessarily accompanies the destruction of the papilla, very much less, and in consequence the scarring left after the operation is not very noticeable. One very important advantage of the method is that it makes the procedure much more expeditious, and another is that the pain caused by the introduction of the needle is notably less. The needle enters the skin with the greatest ease. It does not in the least push the skin before it, and it does not displace the skin laterally. The introduction of the needle is more expeditious and it passes directly through the papilla and not to one side of it. A much greater number of hairs can be operated on in a given time. Squire advises using the butt end of the needle because it is less apt to stick and to get caught in the walls of the follicles.

Bulletin de l'Académie de Médecine, Paris.

18 (Year LXIX, No. 6, February.) *Pylorospasme avec hypersécretion et tétanie; étude clinique et expérimentale. T. Jonnesco and J. Grossman (Bucharest).
19 Sur la fréquence de la distomatose hépatique au Tonkin. Kermorgant.

18. Spasm of the Pylorus with Hypersecretion and Tetany.—Lancereaux, in presenting this communication from Jonnesco, stated that about 40 cases of gastric tetany are known, including one personally observed and one reported by Jonnesco. In the 11 cases in which operative treatment was undertaken, 8 patients were permanently cured, and 3 succumbed to postoperative peritoneal complications. In every known instance of gastric tetany, there was always some mechanical obstacle to the evacuation of the stomach. The stenosis is evidently primary, and it entails dilatation of the stomach and hypertrophy of its membranes. The vomiting and peristalsis indicate stenosis of the pylorus, and all doubt is removed when tetany is superadded. The tetany generally develops at an advanced stage of the affection. It is localized in the muscles of the feet and hands, but sometimes extends to the limbs and jaws; in exceptional cases it may extend to the trunk. Neuropathic atony of the stomach is sometimes the cause of abundant vomiting, but there is no peristalsis nor tetany, and restriction to a milk diet will generally put an end to the disturbances for the time being. The patient succumbed to progressive tetany in Lancereaux's case, unoperated on, but the one reported in detail by Jonnesco was entirely cured by posterior transmesocolic gastroenterostomy. Two phases were marked in this case: in the first there was permanent hyperchlorhydria with stasis of the food and consequent fermentation. The hyperacidity became so intense at times that the irritation of the duodenum induced a reflex spasm which prevented the invasion of the intestines by the irritating chyle. Lavage of the stomach restored conditions apparently to normal for a time. In the second phase, hypersecretion became superposed on the hyperchlorhydria, and tetany developed, probably from dehydration. The tetany did not appear except after great losses of fluid either in vomiting or in diarrhea, and it invariably subsided when fluid was introduced into the organism, by injection or otherwise.

Semaine Médicale, Paris.

20 (XXV, No. 6, February 8.) *Les interventions chirurgicales en face des nouvelles données de la physiologie et de la pathologie générale. A. Charrin.
21 *La néphrite hypogénétique. V. Babes (Bucharest).
22 (No. 7.) *Foreign Bodies in Esophagus of Children.—De la conduite à tenir dans les cas de corps étranger de l'esophage chez l'enfant. L. Bérard and R. Leriche.

20. Surgery in Light of Latest Physiologic Data.—Charrin reviews the information learned of late in regard to the functions of the omentum, spleen, ovaries and other organs, suggesting that their removal is not such a simple, harmless matter as has hitherto been supposed. Physicians should examine, weigh, ponder and watch the results for years instead of merely for a few months, to learn whether, in the *mania* for operating, everything really is for the best. Results are liable to develop tardily, showing that the apparent gain from the operation at first is outweighed by the ultimate harm. Surgery, he thinks, should yield more deference to general pathology and physiology. He cites a case in which the total ablation of a large mass of bleeding hemorrhoids in an otherwise healthy patient was followed by fatal arteriosclerosis with death in eighteen months. His own research has shown that the intestine should be regarded as a chain of juxtaposed organs with varying functions. He has also noted that if the spleen is removed from an animal with a biliary fistula, the bile at once loses its bright color and the dry residue decreases in amount, both in mineral and organic elements. He is also convinced that when a walled-off lesion, such as a tuberculous gland, is removed, its toxins and germs are liable to be launched into the general circulation and serious mischief follows. If the lesion had been left alone it might have persisted indefinitely in its harmless latent state.

21. "Hypogenetic Nephritis."—Babes has coined this term as descriptive of what he believes to be a hitherto undescribed form of nephritis. He has encountered 6 cases of it during the last three years. The subjects were all young, under 30, debilitated and anemic; they were free from kidney disturbances or were suffering merely from occasional slight disturbances of renal origin. During the course of some insignificant sickness, bronchitis, grippe or limited pneumonia, symptoms of subacute uremia suddenly developed and the patients sank into coma, which proved fatal the same day, or within two or three days. The autopsy findings indicated that the kidneys were congenitally undeveloped, unusually small, and the ureters and arteries were extra narrow. The heart was generally enlarged. The kidneys had evidently been taxed to the utmost by the demands of ordinary life, and the extra demands of even a comparatively trifling sickness had proved too much for them.

22. Extraction of Foreign Bodies from the Esophagus.—This article by Bérard and Leriche discusses what is best to be done when a foreign body has been swallowed by a child and has lodged in the esophagus. Extraction with forceps by the natural route is permissible only if the finger can reach the foreign body and if the process of extraction can be under the supervision of the laryngeal mirror. Attempts to push the foreign body down into the stomach are permissible only when it is soft and small, and is of a nature to be acted on by the digestive juices without causing poisoning. Attempts to remove the foreign body with the Graefe extractor should be absolutely rejected, as fatal accidents may occur. Extraction through the esophagoscope is the procedure of the future, but it is not within the reach of every practitioner. Consequently, the most certain and the least dangerous method for ordinary cases is external esophagotomy with suture of the muscularis and temporary drainage at the lowest point of the wound, bearing in mind that the foreign body in a child usually lodges just behind and a little above the notch in the sternum. Esophagotomy has frequently been followed by bronchopneumonia in the cases on record, but this was due to the preexisting inflammation set up by the foreign body, and can be avoided by early intervention.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed page 166.

23 (LXXV, No. 1.) Total Exstirpation der Scapula, Knochen-Regeneration und spätere Function (unter bes. Berücksichtigung der Osteomyelitis scapulæ). P. Bockenheimer.
24 Zur Operation eitriger Adnexerkrankungen durch ventrale Laparotomie (suppurative annexitis). Amberger.
25 Apparatus for Exact Dosage of Mixed Anesthetics.—Misch-Narkosen mit genauer Dosirung der Dampf-Concentration. Kionka and Kroenig (Jena). Illustrated.
26 *Zur Serum-Behandlung des Starrkrampfes insb. über Tetanus-Erkrankungen trotz prophylaktischer Serumtherapie. F. A. Suter.
27 *Experimentelle Studien über Lumbal-Anesthesie. R. Klapp.
28 Ueber Saugpumpen-Drainage bei Pankreas-Cyste (siphon drainage). R. Burmeister.
29 (No. 2.) *Zur Resection des carcinomatösen Magens (stomach). G. Kelling.
30 Simultaneous Stenosis of Pylorus and Intestine.—Ueber gleichzeitige Stenosierung von Pylorus und Darm. E. Payr. (Concluded.)
31 **Beitrag zum Studium der Harn- und Gallensteine* (urinary and gallstones). G. Fantino. (Concluded.)
32 *Klinische und anatomische, sowie experimentelle Beiträge zur Kenntniss der inguinalen und cruralen Blasenhernien (hernia of bladder). F. Karewski.
33 Ueber Ovarial-Hernien. H. Heegaard.
34 Ueber die Madelungsche Deformität der Hand. K. Poulsen. See abstract on page 915.
35 Congenitale halbseitige Gesichtshypertrophie (unilateral hypertrophy of face). R. Werner.
36 Tumors in the Palate.—Ueber Gaumengeschwülste. H. H. Coenen.

26. **Serum Treatment of Tetanus.**—Fourteen cases of tetanus have been treated at Geneva. Only 2 were saved. The few cases treated with prophylactic injection of serum ran a milder course, and 83.3 per cent. of this group were saved. Suter urges the use of the serum as a prophylactic in circumstances suggesting possible danger, that is, before operation or childbirth. The physician who first sees a wound that threatens tetanus should inject the serum without delay. If given in time, the serum seems to be able to prevent the development of the infection.

27. **Lumbar Anesthesia.**—Klapp's experiments on dogs showed that the addition of oil to the solution of cocain entirely abolished all symptoms of intoxication. When the cocain was in an oily vehicle, total anesthesia could be induced in the dog without the slightest symptoms of intoxication. The capillaries and lymphatics are probably unable to take up the emulsion as rapidly as in an aqueous solution, and hence the cocain remains longer at the point of injection and is very slowly absorbed. Glycerin also retards absorption.

29. **Resection of Cancerous Stomach.**—Kelling says only 1 patient survived out of 6 cases of cancer of the stomach in which no hydrochloric or lactic acid could be detected in the stomach content. Five patients survived in 6 cases in which lactic acid was present, and 17 survived out of 20 presenting free hydrochloric acid. The prognosis is, therefore, better in the latter class, probably for the reason that hydrochloric and lactic acid have a certain disinfecting power. In his total experience with 54 cases treated by resection of the stomach he became impressed with the great frequency of postoperative pneumonia as compared with other laparotomies. This is easily explained by the passage of bacteria through the readily permeable central tendon of the diaphragm, when the space below the diaphragm becomes infected, during the course of the operation or afterward. Embolic pneumonia follows. Infection may be due to bacteria in the air, entering during the operation, and the nervous influences disturbed by operations in the region of the epigastrium may co-operate in the morbid process by interfering with the circulation. Kelling varied the technic of resection and total removal of the stomach, hoping to devise some means to avoid these complications, and the results seemed better with an operation in two sittings. He thinks that many of the supposed recurrences are in reality new infections. The main point for the surgeon is to have the condition diagnosed early.

31. **Urinary Calculi and Gallstones.**—Fantino reports 4 deaths in 110 cases of urinary calculi in which an operation was undertaken. His total experience includes 160 cases of calculi. He sutures the bladder after suprapubic incision in case of aseptic urine or slight cystitis, draining the prevesical space and leaving a catheter permanently in place. In severe cystitis he drains the bladder. The oxalate stones always cast sharp shadows in radioscopy, the urates variably sharp or faint shadows. Calcium phosphates give better shadows than ammonium and magnesium phosphate stones. Radioscopy of urinary calculi can be depended on; it failed in only 2 out of 120 cases. Negative findings in case of kidney stones do not absolutely exclude their presence. Gallstones generally cast fainter shadows than liver and muscle, but when they contain considerable lime salts they are liable to cast sharp shadows. *These assertions are based on the findings in 80 radiographs of stones during life; 72 in the bladder, 4 in the kidneys and 4 in the urethra.* The details of his extensive experience are related in full.

32. **Hernia of the Bladder.**—Karewski was able to diagnose with the cystoscope the existence of hernia of the bladder in 2 out of the 5 cases which he reports. In another case the condition was diagnosed, but in the others it was first discovered at the operation or afterward. He describes the mechanism of hernia of the bladder as he studied it further on cadavers.

Berliner klinische Wochenschrift.

37 (XLII, No. 4, January 23.) Zur Finsen-Behandlung des Lupus. E. Lesser.
38 Die Echinococcus-Krankheit des Auges (of eye). R. Greeff.
39 *Local Action of Suprarenal Substance, etc., on Circulation. —Die örtliche Einwirkung von Nebennierensubstanz, Brenzkatechin und Spermin auf die Zirkulation. J. Baum.
40 Encephalomyelitis hämorrhagica disseminata acuta unter dem Bilde der aufsteigenden Spinalparalyse (simulating ascending spinal paralysis). L. Huismans.
41 Cure of Two Cases of Exophthalmus and One of Chorea by Removal of Adenoid Vegetations.—Heilung zweier Fälle von Exophthalmus bilateralis und eines Falles von Chorea durch Entfernung der adenoiden Vegetationen. B. Holz (Berlin).
42 **Campher und Digitalis. Th. A. Maass.*

39. **New Research on Suprarenal and Allied Substances.**—Baum writes from Neisser's clinic at Breslau to report the results of comparative tests of the active principles of the suprarenals and testicles. He found that the latter has exactly the contrary effect to the former. It induces a rapid and intense hyperemia instead of the anemia observed with adrenalin. Its effect is very transient, not lasting more than a minute in his tests on frogs. His researches further emphasize the value of adrenalin as a means to detect imperceptible fissures in the skin. It remains inert, without displaying any action, when the skin is absolutely intact, but if there is any defect its characteristic action is at once exerted. The action of suprarenal substance on the blood vessels is more pronounced, the nearer they are to normal. It is incomplete in proportion to the extent of the destructive process in the vessels and its long standing. Consequently, suprarenal substance displays its greatest activity in acute inflammations while lupous tissues or chronically dilated vessels are not much affected. The difference is still more marked in the after-effect. The nearer to normal the tissues, the more promptly the action of the suprarenal substance subsides afterward, while in chronic vascular lesions intense venous hyperemia follows and persists for some time. This is also observed when the suprarenal substance is applied repeatedly to the same spot. The primary anemia is followed by constantly increasing, transient venous hyperemia. The vessels evidently become fatigued by its application. Baum thinks that these findings indicate that the use of the suprarenal substance should be restricted to tissues that are approximately normal, and that it should never be long continued. His tests were made on the web foot or tongue of curarized frogs. The surface was first rubbed lightly with emery paper and then brushed with a 1 to 10 per cent. solution of the substance to be tested.

42. **Camphor and Digitalis.**—Maass epitomizes the results of recent researches which have provided a scientific basis for empiric observation on the action of these drugs. Camphor, he states, was known and used by physicians as early as 1070, the Arabian physician, Simon Seth, and the abbess Hildegard, writing of its remarkable properties in 1070 and 1150, respectively. Recent experiments with the isolated hearts of warm-blooded animals have thrown new light on its

mode of action, especially those of Gottlieb in 1901. Winterberg since then, and E. Seligmann still more recently. When the isolated beating heart commences to beat irregularly and wildly, the regular rhythm can be restored by adding a little camphor to the fluid being passed through it. The principal action of the drug, however, is in dilating the blood vessels. When injected into the circulation it exerts a slight, transient irritation on the vasomotor center. Similar researches with digitalis have shown that it acts directly on the heart with a further reflex action of constriction of the vessels in the splanchnic area. Digitalis also regulates the pulse. It shares this latter property with camphor.

Centralblatt f. Chirurgie, Leipsic.

Last indexed pages 664 and 747.

43 (XXXII, No. 5, February 4.) *Rectus Muscle and Direct Inguinal Hernia.—Die mediale Leistenbruchpforte und der gerade Bauchmuskel. H. Landau.
44 (No. 6.) Gritti'sche Amputation. W. Harms.
45 Simple Contrivance for Active Movements.—Einfache Stellvorrichtung für aktive Bewegungsapparate. A. Wodarz.
46 (No. 7.) Zur Technik des Gipsbettes (plaster bed). M. Haudek.
47 Ileus as Tardy Consequence of Appendicitis.—Ileus als Spätfolge von Appendicitis. V. Subbotitch.

43. Automatic Correction of Inguinal Hernia.—Landau comments on the looseness of the parts around a direct inguinal hernia. The tissues seem to be merely connective tissue, with the exception of the rectus. When at rest, the lateral margin of the rectus coincides with the aponeurosis, but when it contracts it spreads and becomes a centimeter wider, thus covering the entire mouth of the hernial sac. One would suppose that the contracting rectus would interpose a barrier to the protrusion of the hernia, as it is forced out by the pressure of the diaphragm and abdominal muscles. This is not the case, however, for the reason that the rectus behaves passively during the inspiration which is involuntarily made as a preliminary to exerting pressure. The rectus does not contract; it is merely drawn up passively, leaving the opening unprotected. On the other hand, if pressure is exerted during expiration, the rectus contracts and its lower portion spreads wide like a protecting wall over the ring during the entire period of the contraction. The disposition to hernia is further combated by the shape assumed by the abdomen during inspiration and expiration. Hernia is much more liable to occur during inspiration. Pressure, especially for violent exertion, is more commonly exerted during inspiration. The deep inspiration provides oxygen for the moment when the body makes its muscles work without a fresh supply of oxygen. The arms can do better work, as the muscles then have a firmer hold on the inflated thorax than when it subsides during expiration. Every one who has an unusually wide inguinal ring, or an incipient hernia, should seek to reverse this custom, and learn to use his muscles during expiration. The impulse to contract the muscles as much as possible at every exertion, when straining, coughing or sneezing, will soon become second nature if diligently practiced, and thus the region will be automatically protected against hernia. Landau is convinced that if a person with a tendency to hernia will practice and will accustom himself to this reversal of the usual conditions, he can keep his hernia permanently under control, without necessity for operation or truss.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 747.

48 (XXIX, No. 5, February 4.) Fate of Deported Placenta Cells.—Ueber das Schicksal embolisch verschleppter Placentarzellen. G. Schmorl.
49 Hearing of Fetal Heart Sounds Before Middle of Pregnancy—Zur Frage der Wahrnehmung von Herztönen vor der Mitte der Schwangerschaft. O. v. Herff. See abstract page 915.
50 Konvulsionen nephrektomierter Kaninchen (rabbits). B. Wolff.
51 (No. 6.) Zur Technik der Alexander-Adams'schen Operation. H. Fehling.
52 *Zur Prophylaxe des Puerperal-Fiebers. B. Credé (Dresden).
53 Sectio caesarea wegen retrocervicalen Myomes mit Total-Exstirpation des Uterus. F. Michel.
54 Researches on Isolated Uterus or Vagina.—Bemerkung zu den Arbeiten von Dr. E. M. Kurdinowski über physiologische und pharmakologische Versuche an der isolierten Gebärmutter. A. Labhardt (Basle). See abstract in The Journal, xliii, p. 1586.
55 Zur Anatomie der Atmokausis. G. Fleischmann.
56 (No. 7.) Shape of Infants' Skulls Modified by Hard or Soft Pillows.—Ueber die Entstehung von Brachy- und Dolichocephalie durch willkürliche Beeinflussung des kindlichen Schädels. G. Walcher.
57 Der Bacillus aerogenes capsulatus im Puerperalfieber (In 10 cases of puerperal infection). H. M. Little (Baltimore).

52. Prevention of Puerperal Fever.—Credé thinks that it is just as important to sterilize the internal genitals after childbirth as it is to instill the prophylactic silver solution in the eyes of the newly born child. Conditions, of course, are much simpler in the case of the child's eyes, but the principle of prevention of development of lurking germs is the same. He regards Zweifel's idea as to the evacuation of all blood clots as a very fortunate one (see The Journal, page 763, of last volume). Extensive experience has convinced him that collargol is perfectly harmless for the purpose, and is a powerful antiseptic and catalytic remedy which kills or attenuates the germs in the uterus or vagina. If systematically used, it would greatly reduce the number of deaths from puerperal fever, which still average 6,000 to 7,000 every year throughout the German Empire. He introduces the collargol in the form of a suppository pushed high into the vagina or cervix or into the uterine cavity after delivery, the opening into the vagina then being loosely tamponed with gauze. The formula for this "collargol-vaginal ball," as he calls it, is:

℞. Collargol
Talc. pulv., āā ....grs. xv 1
Olei cacao ....ʒivss 18
M. Ft. globuli No. x.

The suppository and gauze can be renewed at need. The collargol penetrates into every crevice, sterilizes the secretions without injuring the living cells, and, to some extent, is absorbed. Even if infection be already present, it is attenuated, but, in this case, more energetic measures are necessary. He irrigates with a 1 to 2,000 or 5,000 solution of collargol, introducing a suppository to act during the intervals, with other measures as indicated, using as the last resource intravenous injections of 8 to 10 c.c. of a 2 per cent. solution of collargol.

Deutsches Archiv f. klinische Medicin, Leipsic.

Last indexed page 834.

58 (LXXXII, Nos. 1-2.) Modifications in Shape, Size and Position of Heart in Changing from Horizontal to Upright Position.—Ueber Veränderungen in der Form, Grösse und Lage des Herzens beim Uebergang aus horizontaler in vertikale Korperstellung. Methodik der Orthodiagraphie. F. Moritz (Greifswald).
59 Origin of Blood Plates and Their Relations to Spindle Cells.—Entstehung der Blutplättchen und ihre Beziehungen zu den Spindelcellen. E. Helber (Tübingen).
60 *Ueber das Verhalten der Langerhansschen Inseln des Pankreas bei Diabetes mellitus. K. L. Karakascheff.
61 *Meningismus typhosus und Meningotyphus. C. Stäubli.
62 Ein Fall von akuter, einfacher Meningoencephalitis. C. Hegler and E. Helber.
63 Conduction of Heart and Vessel Murmurs in Thorax.—Ueber die Fortleitung von Herz- und Gefässgeräuschen im Thorax. C. Klieneberger.
64 Zur Kenntnis der multiplen Sklerose. P. Morawitz.
65 *Tuberkulöse Prozesse und Lymphocyten. C. J. Fauconett.
66 Fall von primärem Lebersarkom mit Cirrhose der Leber (of liver). J. Rubinato.
67 Intermittierende Polyurie usw. bei Addisonscher Krankheit. E. Bendix.
68 Topography of Warmth Production.—Wärmetopographie des Warmblüters. E. Aronsohn. Reply to article in vol. lxxv.

60. Islands of Langerhans in Eleven Cases of Diabetes.—The entire parenchyma of the *pancreas* was more or less degenerated in all the cases reported, but the islands of Langerhans, for the most part, were normal. In some instances they had evidently proliferated. This proliferation and the general aspect of the islands suggested vicarious action on their part and regeneration of the acini from these islands. The patient may escape diabetes when the acini are alone involved and the islands are spared by the morbid process. Normal parenchyma may regenerate from the islands; they can be regarded as reservoirs which, under certain conditions, may compensate for the destroyed parenchyma.

61. Typhoid Meningismus and Meningo-Typhoid.—Stäubli has observed 2 cases at Munich in which the symptoms suggested typhoid complicated by meningitis, but lumbar puncture was negative. The patients recovered and the course of the disease, in both cases, indicated that the disturbance was functional and due to intoxication from the products of the bacteria. In a third case the typhoid bacilli had evidently located in the meninges and induced a suppurative cerebrospinal meningitis. The case had been one of "walking typhoid"; the cerebrospinal symptoms were first noted after a month of slight headache and general exhaustion in a previously healthy young man.

65. Tuberculous Processes and Lymphocytes.—Fauconnet's researches demonstrate that the tuberculosis toxin attracts only the polynuclear neutrophile cells, not the lymphocytes. The latter are attracted only locally by tuberculous processes.

Deutsche medicinische Wochenschrift, Berlin and Leipsic.

69 (XXXI, No. 4, January 26.) *Venous Congestion in Treatment.—Ueber Behandlung durch venöse Stauung. H. Tillmanns.
70 *Zur Diagnostik und Therapie der Nierentuberculose (of kidney). L. Casper. (Commenced in No. 3.)
71 **Wearing Out of Nerves.—Die Aufbrauchkrankheiten* des Nervensystems. L. Edinger. (Concluded.)
72 Facial *Paralysis.—Zur Symptomatologie* der doppelseitigen Facialislähmung. E. Barth.
73 Chorion-Epitheliom und Lutein-Cysten. G. Fischer.
74 Action of Albuminoids, etc., on Coagulation of Blood.—Ueber die Einwirkung von Eiweisskörpern, Peptonen und Peptiden auf die Blutgerinnung. H. Brat.
75 *Possibility of Transmission of Disease Germs by Common Communion Cup.—Untersuchungen über die Möglichkeit der Uebertragung von Krankheitserregern durch den gemeinsamen Abendmahlskelch nebst Bemerkungen über die Wahrscheinlichkeit solcher Uebertragung und Vorschlagen zu ihrer Vermeidung. O. Roepke.

69. Venous Congestion as a Therapeutic Measure.—Tillmanns urges more general adoption of the method of local venous congestion as a powerful means of influencing mild cases of tuberculosis of the joints, acute or subacute gonorrheal joint affections and chronic stiff joints. When resorption is to be promoted, active hyperemia is preferable. He adds that in all acute inflammations of the soft parts venous congestion is contraindicated.

70. Diagnosis and Treatment of Tuberculosis of the Kidney.—Casper has noticed that patients with operable tuberculosis of the kidney, who refuse an operation, generally succumb sooner or later to the progressive course of the affection. Infection of other organs from the kidney is by no means rare, especially of the other kidney. The patients may remain in comparative health for a year or ten years, and in 3 out of his 60 cases of tuberculosis of the kidney the process actually seems to have healed, as there are no further symptoms. If insignificant hematuria is the only symptom and no pus cells are found in the urine, the operation can be deferred, if the patient realizes the exceptional character of a favorable outcome. Only 3 cases of even comparative recovery are on record to 15 in which the tuberculous process continued to spread. The presence of pus cells urgently indicates an operation. Great debility and general ill health are no *contraindications* to operative interference, if they are referable to the local kidney process alone. Diabetes renders the prognosis graver. One of the 2 deaths in Casper's experience after removal of a tuberculous kidney was in a very mild case of diabetes. The sugar was reduced to normal on a diabetic diet and the patient was well nourished, but he succumbed to increasing weakness in less than two months. The *proportion* of sugar rose alarmingly after the operation and acetic acid also appeared in the urine. Review of the literature shows that the *fatalities after* nephrectomy were almost always due to heart weakness which emphasizes the value of a strong heart for the success of a contemplated nephrectomy. A high degree of arteriosclerosis, especially of the coronaries, would, of course, forbid *operation*, but Casper has never accepted mere *functional* heart weakness as a contraindication. Tuberculosis of the bladder always improves after nephrectomy, and may be permanently arrested. Bladder tuberculosis is generally a strictly localized affection with little tendency to spread or to become generalized. He has 2 patients who have had such a process for ten years. It *occasionally* has an exacerbation, but then subsides into latency for years at a *time*. An early diagnosis and determination of the soundness of the other kidney are the bases for successful *treatment of tuberculosis* of the kidney. Since the functional kidney tests have been introduced, the statistics of five different surgeons show 130 nephrectomies with a mortality of 10 per cent. in the first six months. The record before catheterization of the ureters was 139 nephrectomies, with 21.7 per cent. mortality in the first six months. Albarran's experience has been 3.7 mortality in 53 nephrectomies; Rotter's, 25 per *cent. in* 8; Casper's, 10 per cent. in 20; Kümmell's, 14.3 per cent. in 42 nephrectomies, and Barth's 14.3 per cent. in 7. Comparison of the statistics further shows that in the days before the functional tests, 22.7 per cent. of the 28 deaths after nephrectomy were due to insufficiency of the remaining kidney. This only occurred in a single one of the 13 deaths in the statistics of the last few years, *that is, in* 7.7 per cent.

71. Wearing Out of Nerves Without Normal Repair.—The conclusions of Edinger's series of articles on this subject contain some practical hints. (See previous abstracts, pages 1588 and 1909 of last volume.) He accepts three types of these affections—those that are due to excessive functional demands on normal nerve tracts, those due to lack of normal repair in certain tracts, from the influence of some intoxication, and those due to inherited weakness or predisposition. The practical conclusion is that nerve tracts predisposed by intoxications, by excessive functioning or by inherited weakness should be protected from undue strain. *He has found that tabetics* can be guarded against many manifestations of the disease by refraining from fatiguing exercise, by urinating every hour, by wearing colored glasses in bright sunlight, and by remaining in bed for a few days whenever the symptoms show signs of aggravation. Paralysis of the bladder has not developed in any of his patients who obeyed these rules, but overexertion is liable at times to *induce some symptoms*. *In polyneuritis*, strict rest in bed; and in mononeuritis, a removable immobilizing bandage have given most gratifying results. Paralysis after long illness can be averted by avoidance of overvigorous or of long-continued movements.

75. The Individual Communion Cup.—This article is an appeal for individual communion cups as a special necessity in watering places, sanatoria and similar places. The solution of the question seems to be that each communicant should have his own private communion cup which he keeps in his own possession and takes to church with his prayer book. The results of the writer's experimental tests showed that turning the cup and wiping the rim with a napkin are not sufficient to protect against infection. They refer to 2 authentic unpublished cases in which syphilis was unmistakably *transmitted* from one person to another by the use of a common drinking glass *in a saloon.*

Münchener medicinische Wochenschrift.

76 (LII, No. 6, February 7.) *Action of Mountain Climate on the Blood.—Die Wirkungen des Höhenklimas auf das Blut. K. Bürker.
77 *Eosinophilia in Ankylostomiasis.—Die Vermehrung der eosinophilen Leukozyten bei Ankylostomiasis in diagnostisch-prophylaktischer Bedeutung. H. Bruns, Liefmann and Mückel.
78 *The Presumptive Dangers and the Positive Advantages of Artificial Respiration by Swinging the Asphyxiated Newly Born.——Die angeblichen Gefahren und die sicheren Vorteile der künstlichen Atmung durch Schwingen des tief scheintoten Kindes. B. S. Schultze (Jena).
79 Dangers of Schultze's Swinging.—*Beobachtungen* über die Gefahren Schultzescher Schwingungen. G. Burckhard (Würzburg).
80 Ueber Chorea chronica progressiva. (Huntingtonsche Chorea). W. Weyrauch.
81 Fall von Hypertrichosis sacralis. M. Marcuse.
82 Stopper for Ether Flask. (Aetherflaschenverschluss.) H. V. Baeyer.

76. *Action of Mountain* Climate on the Blood.—Bürker's extensive experimental research is described in *detail*, and the general conclusion deduced that the climate of the mountains certainly has an unmistakable, specific action on the composition of the blood. The reaction to the mountain *climate* on the part of the blood is not a relative but an *absolute modification* of it. The experiments were made on rabbits, some from the same litter being kept at Tübingen and others *being carried* to Schatzalp, at an altitude of 1,864 meters, or nearly 6,000 feet above the sea. The specific reaction on the part of the blood is evidently at first an accumulation of iron and hemoglobin in the liver and in the blood. This accumulation may be due to the opening up of reserve stores of hemoglobin. By the second or third week the blood-forming organs produce a new supply; the liver gives up its iron and the blood takes the hemoglobin. The liver probably yields about half the iron needed, and the rest comes from the bone marrow. The facts observed suggest that this new formation of hemoglobin which occurs in the rarefied air might be materially promoted by supplying iron to the liver when its stock of iron becomes depleted. Bürker thinks that possibly radioactivity may be one of the factors in this specific reaction of the blood.

77. **Eosinophilia in Ankylostomiasis.**—The blood findings did not always parallel the findings in the feces in the large numbers of miners examined, although occasionally a certain concordance was apparent.

78. **Schultze's Swinging to Resuscitate the Asphyxiated New-born.**—Schultze here replies to the various criticisms that have been made in regard to his method of resuscitating infants that have been asphyxiated in the uterus and are born before asphyxiation is quite complete. The hemorrhages and lesions induced by this asphyxiation in the uterus have been erroneously attributed by some to the swinging, when in reality they had occurred previous to birth. Comparison with the natural death of an infant during delivery will show that many of the objections to Schultze's method on this ground are baseless. The exact mechanism of the process by which the infants are revived by swinging is set forth in detail, and its superior advantages are reaffirmed by the author of the method after long years of experience.

Wiener klinische Wochenschrift, Vienna.

Last indexed page 587.

83 (Vol. xviii, No. 3, January 19.) *Zur chirurgischen Behandlung des kallösen, penetrierenden Magengeschwürs (gastric ulcer). H. Hinterstoisser.
84 *Die kombinierte Chinin-Iod Behandlung des Lupus erythematosus nach Holländer und eine Erklärung für diese Therapie. M. Oppenheim.
85 *Zur allgemeinen Technik der Nerven-Plastik. H. Spitzy.
86 *Zur Frage der Konstitution der Krebskranken (cancer subjects). A. Fraenkel.
87 (No. 4.) *Vergleichende Betrachtungen über die Hyperemesis und Eklampsie (comparative study). E. Dirmoser.
88 Beitrag zur Pneumokokken-Epityphlitis (Two cases). E. Halm.
89 *Reflected Sunlight in Treatment of Laryngeal Tuberculosis.—Ueber die Behandlung der Kehlkopftuberkulose *mit* Sonnenlicht nebst einem Vorschlag zur Behandlung derselben mit künstlichem Lichte. J. Sorgo.
90 *Zur intravenösen Sauerstoff-Infusion (of oxygen). A. Neudörfer.
91 Biologic Action of Cholin.—Zur Kenntnis der biologischen Wirksamkeit des Cholins. A. Exner and E. Zdarek.
92 (No. 5.) Ueber den Wert des Pyramidons für die Behandlung des Abdominal-Typhus. C. Hodlmoser.
93 Foreign Bodies in Eye and their Expulsion.—Ueber Wanderung von Fremdkörpern im Auge und Spontanausstossung derselben. B. Gesang.
94 Action of Lecithin after Exposure to Röntgen Rays.—Zur Wirkungsweise des röntgenbestrahlten Lecithins auf den tierischen Organismus. O. E. Schulz.
95 *Die Behandlung des Condyloma acuminatum mittels Erfrierung (refrigeration). M. Schein.

83. **Surgical Treatment of Deep Indurated Ulcer of the Stomach.**—Hinterstoisser considers that gastroenterostomy is entirely inadequate for these cases in which the ulcer has bored deep into the stomach wall and has thrown up a thick wall of cicatricial tissue. They should be treated on the same principles as a malignant growth, by resecting into sound tissue. The Murphy button was used for circular antecolic gastroenterostomy in one of his 3 cases, but it did not answer the purpose. The thickening and hypertrophy of the stomach wall prevented the halves of the button from locking correctly. All the patients were completely cured and have no further stomach disturbances.

84. **Quinin-Iodin Treatment of Erythematous Lupus.**—Oppenheim proclaims that Holländer's method of treating erythematous lupus by quinin internally and iodin externally afforded remarkably fine results in 6 cases in Finger's clinic. Two patients were cured, and the others were very much benefited. He experimented with animals to study the reason for this striking benefit, and came to the conclusion that it is due to impregnation of the organism with the quinin which enhances the action of the local applications of iodin. The iodin attracts the quinin to the point of the lesion, where it exerts its almost specific action. The patients took quinin bisulphate in increasing doses to a maximum of 4 gm. a day, and the patch was brushed with tincture of iodin twice a day, after the scabs had been removed with alcohol and ether. Treatment was kept up for a month or two with occasional pauses. The chemotactic action of the iodin suggests the query whether internal administration of quinin would increase the local absorption of iodin preparations, and whether other cutaneous affections might not be favorably influenced by a similar combined treatment, and, finally, whether a similar behavior might not be anticipated from other drugs that display an affinity for each other like that between quinin and iodin.

85. **Plastic Operations on the Nerves.**—Spitzy experimented on dogs to learn whether it might not be possible to transplant the nerves in a paralyzed region so as to innervate the muscles effectually. His successful results were summarized in The Journal, Sept. 24, 1904, page 915. The various instruments he has devised to overcome obstacles are here illustrated, and he also describes the technic for the different regions. He is convinced that in many cases this neuroplasty might advantageously supplement other measures.

86. **Constitution of Cancer Subjects.**—Fraenkel expresses surprise that so few cases of cancer are noted in subjects with progressive paralysis. In 1,744 cadavers of subjects with progressive paralysis he found cancer very much less frequent than in a corresponding material of any other nature. Advanced arteriosclerosis, with consecutive changes in the heart, is a constant finding in progressive paralysis and tabes, and arteriosclerosis may even be regarded as an early symptom of these affections. The rarity of cancer in these cases of poor circulation and its frequency in particularly well-nourished persons seem to suggest that cancer thrives on this latter soil. The cachexia is altogether secondary. The superabundant health which seems to be the characteristic of those doomed to cancer is, possibly, one reason why the diagnosis of cancer is not made earlier. The aspect of good health prevents the suspicion of any serious affection during the incipient phases of malignant disease. The fact that mechanical and chemical irritation affords a predisposition to cancer may be due to the excessive segmentation of cells which such irritation induces. Cells thus stimulated acquire in time a senile character and progress to atypical development. This is the result not so much of an excess of vital energy as of the lack of the normal regulating processes. In his autopsies in cases of progressive paralysis he found innumerable factors which might have predisposed to cancer: syphilis, trauma, inflammations, round ulcer, etc. The absence of cancer throughout the series can be explained only by assuming that the early deterioration of the circulatory apparatus entailed changes in the tissues more in the nature of atrophy, with little reacting power. Another reason, he remarks, why cancer affects persons with a circulatory apparatus in good condition is that others do not survive to the cancer age. Cancer occurs most frequently at the points peculiarly exposed to mechanical irritation and to irregular embryonal development, and these are places where the blood vessels are especially numerous and the nutritional processes unusually active. Repair of mechanical injury at these points has a tendency to be excessive. For the same reasons x-ray burns are liable to afford a predisposition to local cancer.

87. **Analogies Between Hyperemesis and Eclampsia.**—Dirmoser ascribes both these affections to autointoxication and treats them on this assumption. Remedies to quiet the nervous system are indicated at first, followed by measures to eliminate the toxins causing the trouble—hydrotherapy, saline infusion, venesection and laxatives. Withdrawal of blood has a beneficial action not only on account of the elimination of toxins, but, mechanically, by reducing the blood pressure. The patients should be isolated both in case of hyperemesis and of eclampsia. His clinical experience has confirmed the value of

well-marked, unstained intervals, and showing in cultures considerable variation in size. There is a tendency to grouping in fours, or tetrads. In cover-glass preparations from the meningeal exudate, the diplococcus is frequently situated inside leucocytes and sometimes within the nucleus. The appearance is very much like that of gonorrheal pus. The organism is decolorized by the Gram method of staining; in cultures it grows best on blood serum. The colonies are round, colorless, slightly convex or flat, moist and viscid-looking; they may become confluent. The organism has feeble vitality and dies out quickly under cultivation. It has a weak pathogenesis for laboratory animals. The cultures vary in virulence in certain cases, 1 c.c. of a bouillon suspension of a 24-hour blood serum collected and injected intraperitoneally in a guinea-pig will kill the animal in 48 hours.[1]

This type of meningitis is constantly present; it exists in the form of epidemics, which are repeated with some regularity. The disease has peculiar interest in Massachusetts from the fact that it was first described here by Danielsen and Mann, in 1806. There have been four epidemics in the state, each of which has been made the subject of a special report. These epidemics occurred in 1809, 1864, 1874 and 1897. There is great difference in the morbidity and mortality of the disease in the different epidemics; Hirsch places the mortality at from 20 to 75 per cent. In the last epidemic, in Boston, the mortality was 65 per cent.; the epidemics are usually of short duration. Between the epidemics, sporadic cases appear, which may be more numerous in some years than in others. Before careful bacteriologic examinations rendered the recognition of the disease certain, the character of the infection in sporadic cases was determined by the clinical history, with or without the reports of autopsies. The disease is sufficiently characteristic to make this method approximately correct. In 1897, from the clinical reports, in some cases with autopsies, it seemed probable that here and in Europe sporadic cases were common. The main clinical features distinguishing sporadic cases of epidemic cerebrospinal meningitis from other forms of meningitis were the low mortality (in 24 cases from the clinic of Prof. Bauer, reported in 1890, there were 8 deaths, and in 17 cases reported from Ziemssen's clinic at the same time there were 3 deaths), its appearance as a primary affection, and the frequency with which it is followed by secondary affections of the eye and ear.

Since our study of the disease in 1897 there have been numerous reports of sporadic cases, in which careful bacteriologic study of the exudation have determined the presence of the *Diplococcus intracellularis meningitidis*, and have confirmed the conclusions which we reached in 1897 of the frequency of sporadic cases. Since 1898 there have been 61 autopsies on meningitis at the Boston City and Massachusetts General Hospitals, with bacteriologic study of the exudation. In 13 of these the *Diplococcus intracellularis meningitidis* was found in culture. In addition to these there were 8 cases which were considered due to the same cause but in which the organism was not obtained in cultures. Of these 5 were chronic, with organization of exudation, the organism having evidently died out, and in 3 the cultures were negative from unknown causes. All of these cases were primary and did not differ from the type of disease which we had studied in the epidemic in 1897. The absence of bacteria in carefully made cultures of the exudation in acute primary meningitis speaks in favor of this type, for the diplococcus is rather difficult to cultivate, of feeble vitality and can easily die out.

These statistics give no idea of the frequency of the disease. We know that cases do recover, for there are numerous reports of recovery of cases in which the diplococcus has been found in the fluid from spinal puncture. There is great need of more accurate statistics on this subject, and these are to be obtained by careful bacteriologic examination of fluid derived from spinal puncture, in large numbers of cases, including those in which the disease may only be suspected.

Examination of the health statistics in Massachusetts shows a gradual decline in the number of deaths from epidemic cerebrospinal meningitis from 1897 to 1902. In 1897, which was the chief year of the epidemic, there were 355 cases. The deaths were most numerous in April, May and June, which are the months in which the epidemics are most fatal. In 1898 there were 259 cases, the epidemic influence being slightly shown by 91 cases in the same months. In 1899 there were 240 cases, in 1900, 165; in 1901, 176, and in 1902, 165 cases. These cases were scattered over the state without occurring in sufficient numbers in any one place to constitute an epidemic. There is no way of positively determining whether or not they were due to the *Diplococcus intracellularis*. In the Massachusetts reports, other forms of meningitis were placed under the head of cephalitis until 1901, when the term "other forms of meningitis" was used. In 1900 there were 1,205 cases of cerebritis, in 1901, 1,168 cases of other forms of meningitis, and in 1902, 1,200 cases. The cases described as cerebrospinal meningitis are the primary cases, the secondary cases coming under other forms. It is, of course, difficult to determine, without an autopsy account, whether meningitis is or is not primary. All my experience leads me to the belief that, with rare exceptions, cases of primary meningitis are due to the *Diplococcus intracellularis*. In the 35 autopsies made in 1897, all the cases were primary, and the 21 found since were also primary. In the remaining 40 of the 58 cases only 2, in 1 of which the pneumococcus was found and in 1 the streptococcus, were regarded as primary. It can be concluded, both from autopsy evidence and from statistics, that sporadic cases of meningitis due to *Diplococcus intracellularis* are of frequent occurrence, but we have no way of determining how frequent the disease is. Autopsy experience shows that the disease is more frequently not diagnosed when present than the reverse. We have no means of estimating the mortality of meningitis due to the pneumococcus or streptococcus; these cases are usually secondary, and the mortality in secondary meningitis is much higher than in the primary form. Up to 1898 we could not find a case in which the culture of fluid from spinal puncture showed pneumococci or streptococci in which recovery took place. Since 1898 there have been, at the Boston City Hospital, 4 lumbar punctures in which the pneumococcus was found and three in which the streptococcus was found, all of which cases resulted fatally. To a certain extent, we can judge of the frequency of the disease by evidences at autopsies of preceding inflammation of the pia arachnoid, shown by thickening due to connective tissue increase and by lymphocyte infiltration with a corresponding increase in the glia of the cortex, and glia thickening and granulations on the surface of the ventricles. This condition, which is not uncommon, can be the result of a preceding acute infection, but certainly not all cases are the result of this.

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[1] Mallory and Wright: Pathological Technic, 1904.

The presence of these sporadic cases is of importance in the occurrence of epidemics. The *Diplococcus intracellularis* is an organism of feeble vitality; it dies out easily on exposure to drying and light and is incapable of a saprophytic existence. In the absence of intervening infections, it would be impossible for the period of epidemics to be bridged over. Not only this, but there is evidence that this organism can produce other infections and may even live as an inhabitant on the normal mucous membrane. There have been a great many cases reported of the presence of the *Diplococcus intracellularis meningitidis* in the nose. In most of these the diagnosis was made on morphologic grounds, and such cases should be thrown out, owing to the probability that the organism was confounded with the micrococcus catarrhalis, which it resembles in morphology and in staining reaction. The differential diagnosis can only be made in cultures. In fifteen cases of meningitis examined in the Boston epidemic, diplococci decolorized by Gram were found in 10. In 12 cases, chosen at random, similar diplococci were found in 2. Attempts were made to cultivate the organisms, but not successfully.

Lord has examined the bacteria of the nose in 21 cases. In the nose of a physician who had been in daily attendance in the throat room and who had a severe rhinitis with congestion of the mucous membrane and profuse muco-purulent discharge, he found diplococci which all tests showed to be the meningitidis. In reviewing the literature, Lord accepts but 3 cases, making, with his own, four, in which the *Diplococcus intracellularis* has certainly been found in the nose. Some of these cases are of considerable interest: Kiefer, after experimenting for some days with the cultivation of the organism with the view of comparing it with the gonococcus, suddenly acquired a severe purulent rhinitis, with headache, nervousness and an uncomfortable sense of contraction of the neck. The temperature remained normal. Examination of the nasal pus by cultures demonstrated the presence of the *Diplococcus intracellularis*, along with other bacteria; the rhinitis lasted 14 days. In this case it seemed probable that there was a primary infection of the nose, with a slight meningitis, resulting from extension of the infection through the lymphatics into the meninges. The case lacks the proof which spinal puncture should have given, both of the meningitis and of the character of the meningeal infection, if present. There can be no doubt that extension may take place from the meninges into the nose, just as it certainly does into the ears and eyes. Rhinitis is not an uncommon condition in acute meningitis, and Albrecht and Ghon found the *Diplococcus intracellularis* by culture from the nose in one of their cases of acute meningitis. The evidence which we have justifies us in the conclusion that there is a form of meningitis produced by the *Diplococcus intracellularis meningitidis*, that the epidemics of acute meningitis are due to this organism, that sporadic cases are not infrequent, that, with rare exceptions, primary cases of meningitis are due to this organism; that recovery takes place much more frequently in this type of disease than when infection is due either to the pneumococcus or the streptococcus, that the disease is more common than is generally supposed, that the organism does not live as a saprophyte outside the body, that the organism may be found on the mucous membrane of the nose, where it may produce a rhinitis, and that it is probable that infection of the meninges takes place by extension from some of the adjacent mucous membranes by means of the lymphatics. We can only explain the epidemics of the disease by the assumption that at certain times the power of infection is increased either by an increase in the virulence of the diplococcus or by a decrease in the resistance of the tissues. The study of the influenza bacillus in the past years has shown much the same condition. The organism is constantly present, and not only are sporadic infections produced by it frequent, but the bacillus may live as a harmless inhabitant of a mucous surface. The causes underlying the occurrence of epidemics are unknown, and even atmospheric conditions can not be excluded. With regard to the pneumococcus, we know that the organism is associated with acute croupous pneumonia, but we do not know the underlying conditions which enable the pneumococcus to produce this disease.

Of the 61 cases of sporadic meningitis seen since 1897, 18 were found to be due to the pneumococcus. Weichselbaum regards this organism as one of the most frequent excitors of both primary and secondary meningitis, and both he and Netter believe that meningitis due to the pneumococcus may appear in epidemic form. In the report on meningitis in 1898, 10 cases were found to be due to the pneumococcus, and in 2 of these the infection was primary, no other lesions due to the organism having been found. In but one of the recent cases was the infection primary in the meninges, and even here the accompaniment of an acute nephritis suggests a preceding acute infection. In 6 cases the infection was secondary to otitis media and mastoiditis; in 1 case it was secondary to an infection of a tumor of the sphenoid; in 1 case it was associated with the streptococcus, secondary to fracture of skull and operation; in 1 case it was secondary to abscess of the prostate; in 1 case it was secondary to acute infection of ethmoid, "the pores of right cribiform plate contain fibrinous pus in continuity with exudation about right olfactory lobe," in 2 cases it was secondary to acute croupous pneumonia, in 4 cases it was secondary to acute bronchopneumonia and pleurisy, and in 2 cases it was secondary to acute pneumococcus endocarditis.

In but few of these cases did the infection appear to be embolic; in most cases the extension to the meninges was by continuity or by the lymphatics. In its general pathogenic properties, the pneumococcus attacks tissues from mucous surfaces and extends in the body by surfaces. I believe that the frequency of pneumococcus meningitis is greatly overestimated, and especially its frequency secondary to pneumonia.

While vital statistics with regard to the occurrence of disease are not worth much, owing to errors in diagnosis, Chart 1, showing the relative frequency of pneumonia and meningitis in different months, gives some light on the relation between meningitis and pneumonia. The deaths from these diseases in Massachusetts have been taken during a period of five years in order to cover slight inequalities in different years, commencing in 1898, the year following the epidemic of cerebrospinal meningitis. If there is any marked relation between meningitis and pneumonia it should be shown in the inter-occurrence of the diseases. We see from the chart that the greatest number of deaths from what are described as other forms of meningitis occur in

August, when the mortality from pneumonia is lowest. It is very possible that the high number of cases in March, April and May is due to confusion of these cases with primary meningitis due to the *Diplococcus intracellularis,* for these months show the highest mortality in epidemics and in sporadic cases due to this organism. The curve made from the statistics made in New York City, showing the relation between deaths from acute respiratory diseases and cerebrospinal meningitis in five years, shows much the same. It is interesting to see that the apex of the acute respiratory diseases curve in New York is reached in April, while the apex of the pneumonia curve in Massachusetts is reached in March (Chart 2).

There were 18 cases of streptococcus infection, and in 1 the infection was primary. In seven cases it was secondary to fracture or operation wound of the skull; in 8 cases it was secondary to otitis media and mastoiditis, in 1 case it was secondary to acute streptococcus endocarditis, and in 1 it was secondary to acute bronchopneumonia and acute cystitis. We see from this analysis that, in the two hospitals mentioned, fatal sporadic cases of meningitis are equally divided between the three organisms which are to be regarded as the main etiologic factors. Of the remaining 4 cases, 2 were produced by the *Staphylococcus pyogenes aureus,* 1 was secondary to trauma with following operation, and 1 was secondary to empyema. In two cases the nature of the infection was not determined. In one of the cases reported in 1898 the meningitis was produced by the anthrax bacillus and was secondary to a primary lesion on the face. We have never had any cases due to the typhoid bacilli.

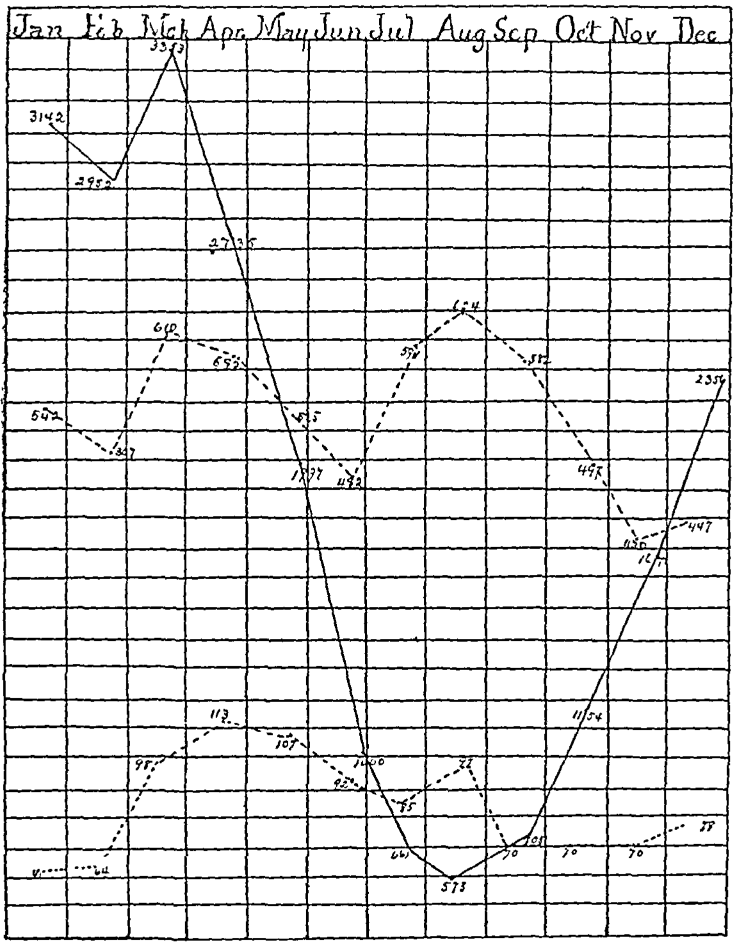

Chart 1.—Deaths from pneumonia, meningitis and epidemic cerebrospinal meningitis in Massachusetts from 1898 to 1902 inclusive. The unbroken line represents pneumonia, the middle line meningitis and the lower line epidemic cerebrospinal meningitis; it is probable that these two forms of meningitis are to some extent intermingled.

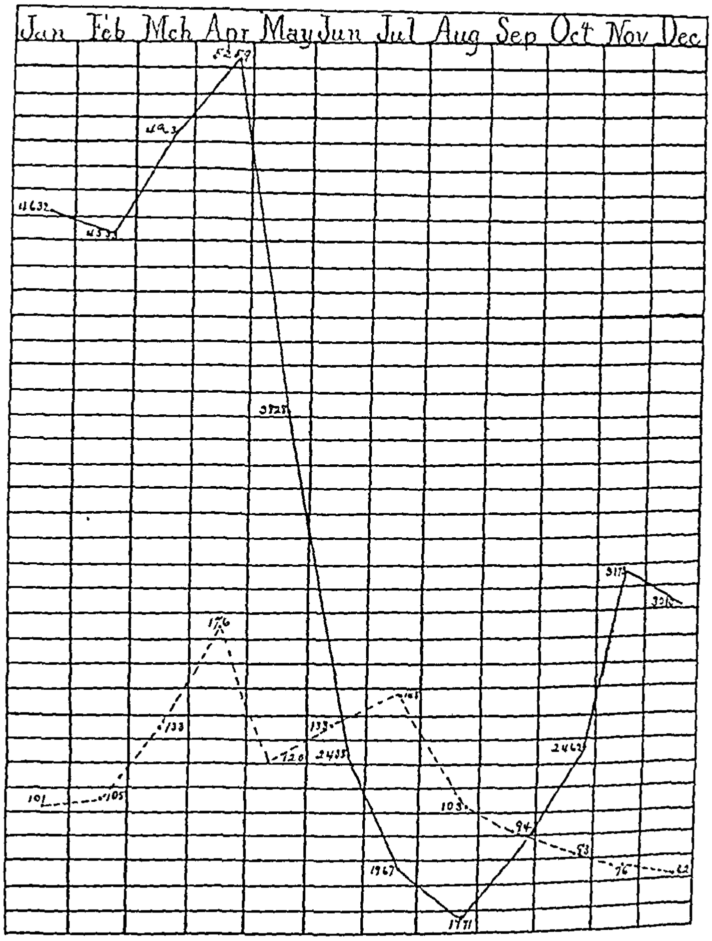

Chart 2.—Acute respiratory diseases and meningitis in New York City from 1898 to 1902 inclusive. The unbroken line represents deaths from acute respiratory diseases. The broken line represents deaths from meningitis. No attempt is made to distinguish between the various forms of meningitis.

The pathologic process in meningitis due to the *Diplococcus intracellularis* consists in inflammation, with purulent, sero-purulent and fibrino-purulent exudation. The most marked lesions are found at the base of the brain, extending from the optic commissure backward over the crura, the pons and medulla. On the convexity of the brain the exudation is usually most intense on the lateral surface, little or none being found in the meninges of the longitudinal fissure. The meninges of the cerebellum are always involved and often the greatest mass of the exudation is found on the upper surface of this structure. In the most acute cases, those dying a few days after the onset, there may be a little more than intense hyperemia of the vessels of the meninges and cortex. In the more advanced cases, dying from 5 to 12 days after the onset, the amount of exudation is much greater and has a tough, rather gelatinous character. In the chronic cases, in which death has occurred in from 15 to 30 days from the onset, there is edema and general thickening of the meninges, which is most marked at those localities where the acute process is most evident. In one case, the duration of which was apparently over 30 days, the entire medulla was embedded in a dense mass of connective tissue. In the cord the exudation is most marked along the posterior surface and may be found here in large amount, while the anterior surface may show only cloudiness and injection. There is usually more exudation along the dorsal and lumbar cord than along the cervical.

In 8 of 35 cases on which autopsies were made in he epidemic studies, there were definite macroscopic esions in the brain, consisting in hemorrhages in the white matter. No abscesses were found. The cranial nerves were affected to a greater or less degree in all ases. Those most affected were the second, fifth, sevnth and eighth. They were embedded in the exudation which extended along them, and on section they were ound to be swollen and reddened. The gasserian ganglia were examined in a number of cases, and in all hey were found swollen and softened. The spinal erves were also affected; the nerve roots were emedded in the exudation and the spinal ganglia were ed and swollen. The exudation was also found around he nerves of the cauda equina.

Microscopically, the exudation in the most acute ases was purulent and the leucocytes were exclusively olynuclear. The absence of eosinophile cells was remarkable. In more advanced cases the number of cells in the exudation was greater and the fibrin was abundnt. As the process advanced, large endothelial phagoytic cells became increasingly numerous, and in some cases made up a large part of the exudation. They often contained from one to several polynuclear leucocytes enclosed in vacuoles and showing varying degrees of disintegration.

In the chronic cases the exudation was mainly represented by degenerated pus cells. In these chronic cases there were also numbers of plasma and lymphoid cells.

Microscopically, lesions of the tissue of the brain and cord were absent in but few cases. They were most evident in those cases in which from 5 to 10 days elapsed from the onset of the disease until death. The blood vessels of the convexity were injected. The cortex appeared redder and the tissue edematous. In places there was circumscribed infiltration of the tissue with pus cells, which extended downward from the infiltration in the meninges. This infiltration was usually most marked in the outermost layer of the cortex above the ganglion cells, but in some places it extended among the ganglion cells and even into the white matter. Single pus cells were often found in the brain tissue, apparently remote from the areas of infiltration. In 2 cases extensive softening, with purulent infiltration and hemorrhage, was found in the cortex of the cerebellum. These pus cells in the brain were irregularly distributed in the tissue, and were found both in places which appeared to be altered by infiltration of edematous fluid and in those in which the intracellular material seemed to be normal. The pus cells in the tissue were often distorted in shape, sometimes extending in long lines, the shapes resembling those seen in pus cells wandering in the tissue of the cornea. Their situation and shape did not seem to indicate the existence of preformed spaces. They were but rarely found around the ganglion cells.

In certain areas in the cortex, particularly about the vessels, large numbers of large endothelial cells resembling those in the meninges were often found. They were apparently formed by proliferation of the cells in the adventitial tissue. They extended often for some distance in the tissue around the vessels where this showed evidence of disintegration, but they seemed to have little or no power of wandering into tissue which was comparatively normal. The presence of these cells is important in relation to the neuroglia cells. Proliferative changes in the neuroglia were constantly present. In the chronic cases there was a distinct increase in neuroglia fibrils, together with increase of cells, which was chiefly marked in the tissue of the ventricles and in the outermost layer of the cortex. In several of the more acute cases numerous nuclear figures were found in the cells of the neuroglia. These were particularly marked in one case. The proliferating neuroglia cells somewhat resemble the large endothelial cells. There is an increase of nucleus with the formation of evident protoplasm about it. The nuclear figures are well marked, showing spindles and centrosomes. Often large cells with several nuclei result from such proliferation. In one specimen in which this was most marked, nuclear figures were also found in the so-called Trabant cells adjoining the ganglion cells.

Analogy with other tissues would indicate that such changes in the intercellular tissue consisting of proliferation of fixed tissue elements and exudation of leucocytes would be accompanied by degeneration of the specific cells of the tissue, namely, the ganglion cells. The most evident changes in the ganglion cells were found in those places where disintegration of the tissue was best marked, and consisted in disintegration of the cell protoplasm. It is difficult to distinguish such conditions from artefacts. Degeneration of nerve cells is not of the same character as degeneration of parenchymatous cells in other organs. The state of our knowledge with regard to structure of ganglion cells and arrangement of granules is not sufficiently definite to enable us to determine with certainty their degenerations.

The most marked changes in the nerves were found in the second, fifth and eighth; the lesions of the nerves represent an extension of the inflammatory process from the meninges.

The dural covering of the optic nerve in the orbit showed little change save dilatation of vessels. The subdural space was dilated and the exudation was found in the pia arachnoid of the nerve. From the meninges the infiltration extended more or less into the nerve itself. In both the optic and olfactory nerves, proliferation of the neuroglia cells was shown similar to that in the brain. The exudation may extend along the optic nerve into the eye.

In acute cases, section of the eighth nerve showed it embedded in a mass of pus, its sheaths softened, broken up and in places entirely gone. The nerve was infiltrated with numbers of pus cells, partly in the form of lines running through it, partly in a more diffuse infiltration. The seventh nerve often showed as great a degree of infiltration as the eighth. Longitudinal section of the fifth nerve extending into the gasserian ganglion showed intense neuritis in the nerve on the cerebral side of the ganglion. Similar changes of the nerve roots and ganglion of the spinal cord were found in all cases which were examined. In some of the more chronic cases, lesions of the nerve roots of the spinal cord were more marked than in the acute cases.

In the chronic cases there was marked thickening of the meninges due to connective tissue formation and a marked increase of the neuroglia of the cortex. There was little evident exudation, circumscribed yellowish foci marking the remains of it. The meninges at the base were opaque, and were enormously thickened, and there were bands of organized tissue extending from point to point. In one of the most chronic cases, in which the duration of the disease could not be ascertained with any accuracy, owing to the mental condition of the patient when brought into the hospital, the meningeal changes simulated general paralysis. The only

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evidence of exudation was in the ventricles, in which masses of partly organized fibrin were found adherent to the lining. In another case the entire medulla was so embedded in a dense mass of connective tissue that it was difficult to remove it. Chronic hydrocephalus is not uncommon in such cases. It is due to closure of the foramen of Magendie by organization of the exudation about the cerebellum.

There is some difference in the character of the lesions due to pneumococcus and streptococcus, as compared with those due to the *Diplococcus intracellularis*, but no differences between lesions due to the pneumococcus and streptococcus. Endovascular lesions, consisting in cellular infiltration behind the endothelium, were found in both arteries and veins in meningitis due to the pneumococcus and streptococcus. The endothelium was preserved and often formed festoons projecting into the lumen of the vessel, with the cell accumulations behind it. The endothelial cells were swollen, but otherwise unaltered. I do not believe that the large cells arise from proliferation of the endothelium, but they seem to reach their position by emigration from the interior of the vessel. In meningitis due to these organisms there is also less tendency to involvement of the tissue of the brain and cord, nor is the extension along the nerves so marked. The cases of these forms of meningitis have not been so numerous nor has their anatomic study been so thorough as in the cases due to the intracellularis.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.

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(*Continued from page 929.*)

Case 16.—Mrs. R., aged 55, was referred to me by Dr. Baker of Elmira, N. Y., through Dr. Osler.

History.—She had suffered for fifteen years with a neuralgia which originated in the supraorbital territory. It had become acutely aggravated a few years before her ganglion operation after an exposure to a cold wind. She had taken opiates in large doses during this entire period and, indeed, had been addicted to the habit before the onset of her neuralgia. For the last year the pain had been extreme and almost continuous. A constant attendant was necessary, day and night. All inhibition was lost and she invariably screamed aloud during her paroxysms. She was more or less narcotized most of the time and seemingly was maniacal. The teeth had all been extracted at one sitting two years before. No peripheral neurectomies had been undertaken. The entire territory of the fifth nerve was involved. Pain was in the tongue, in the inside of the ear and nose, as well as in the more commonly described areas. She presented the awful appearance of an extreme case of tic, screaming and clutching at everything during her frequently recurring exacerbations of pain; dirty, with matted white hair, full of sebaceous discharge, her head and face having been unwashed for many months. She looked twenty years more than her actual age.

Examination.—Physical examination discloses a very unpromising condition. An advanced degree of arteriosclerosis was present. The urine had a specific gravity of 1030 and contained a large amount of sugar. She was unable to speak or to protrude her tongue, and her condition was so serious that most of the usual preliminary examinations were omitted. Owing to the disturbance caused by her frequent cries, she was operated on almost as an emergency a few hours after admission, as it would have been imposible to have kept her over night in the hospital

Operation.—May 15, 1903; Union Protestant Infirmary; ether. Anesthesia of necessity was administered before any operative preparations could be undertaken. When the side of the head was scrubbed and cleaned, almost the entire epithelium came away, leaving practically a raw surface. Owing to her serious condition, the operative approach was conducted somewhat more hurriedly than should have been done, and by the carelessness of mistaking the ramus of the third for that of the second division, the meningeal artery was torn off at its point of emergence into the cranial cavity at an early stage of the operation. This is the first time that this accident has occurred and it sufficed to show the operator how serious a complication it may be, in delaying and in preventing a subsequent clean neurectomy. The vessel was finally controlled, but the difficulties of the enucleation were such as to preclude the removal of more than the lower two-thirds of the ganglion. It would have been impossible in a case of this kind to have exposed the trigeminal root in order to divide that and thus save the time necessary for the extraction of the ganglion. The wound was sufficiently dry to allow closure without drainage.

Postoperative Notes.—A critical condition, with anuria, Cheynes-Stokes respiration, and a pulse varying between 130 and 160, ensued for twenty-four hours after the operation. It was feared that a condition of diabetic coma was imminent and would lead to her death. Happily, she awakened from her comatose condition, as it were, well on the morning of the third day. The wound healed *per primam.* Her drugs were gradually withdrawn and a fight ensued to keep her from them. The sugar disappeared completely from the urine. An enormous appetite resulted in a very rapid gain of weight. There were no ocular complications. She returned home on the tenth day and reports that she has since remained free from pain. She has, unfortunately, resumed or continued her morphia habit.

This and the case of sinus injury are the only ones in the series which developed any critical postoperative complications.

Case 17.—Mr. F. T. M., aged 58; a bookkeeper.

History.—He had suffered with a right-sided neuralgia for nine years. The pain originated in the supraorbital region and soon spread to the other divisions. All his teeth had been extracted. In 1898, an infraorbital neurectomy had been done, in Charleston, with a respite of four months. In 1899, other peripheral operations were performed, with little if any relief, and since then the pain has steadily increased despite all forms of treatment. Eating, drinking, almost any movement, in fact, of the palate or tongue, would inaugurate a paroxysm. His weight in consequence had dropped to 102½ pounds. He takes a large amount of morphia daily.

Examination.—Examination showed a greatly emaciated, gray, senile appearing man, with tortuous radials, so ill and suffering so greatly that preliminary observations had to be omitted.

Operation and Result.—July 11, 1903; The Church Home; ether. This proved to be a very easy case without complications, with a total extirpation and closure without drainage. The patient's convalescence and recovery were without incident worthy of mention (Fig. 29). He gained 14½ pounds during the three weeks subsequent to the operation, and his intelligent co-operation enabled me to make many of the observations on the physiology of the fifth nerve which will be subsequently recorded. He has remained well.

Case 18.—Mr. J. P. B., aged 53; a farmer.

History.—His neuralgia has been of ten years' standing, having originated in the nasolabial region of the right cheek. Even from the onset it has been severe, with flash-like paroxysms, which extended early into the territory of the first division. All the teeth in the right upper quadrant were extracted. For the past year the pain has been especially severe; he has had little food or sleep, and has been unable for many months to comb his hair or to touch his beard, both of which are long and unkempt. A suboccipital extension has been present for several weeks and there are indications also that the third division has become involved. He has been confined to bed most of the time for many months. He cries out with pain during the paroxysms. *Physical examination* is practically negative.

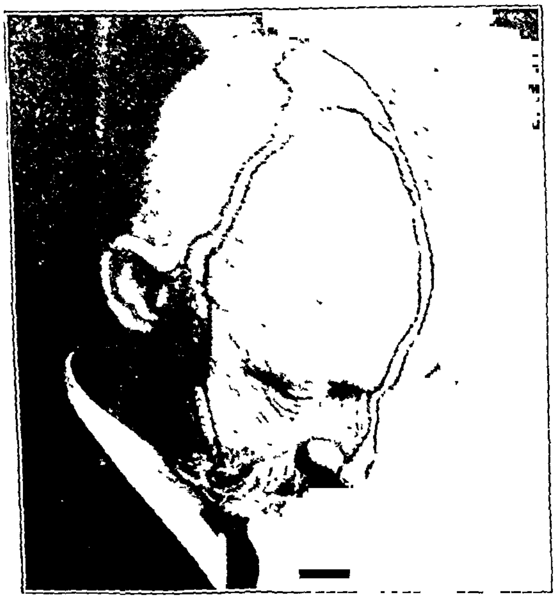

Fig. 29.—Case 15. Tenth day; incision barely perceptible. Areas of anesthesia and tactual anesthesia.

Operation.—July 27, 1903; Church Home; chloroform. The exposure in this case was dry and the extirpation easy (Fig 30). Slight bleeding occurred during the liberation of the second and third divisions. It would have been a simple matter in this case to have divided the sensory root. A drain was left in the posterior angle of the incision for twenty-four hours. The highest temperature registered after the operation was 99.6. Areas of anesthesia are shown in Fig. 31.

Postoperative Notes.—His convalescence, otherwise uneventful, was unfortunately complicated by an attack of perineal herpes on the tenth day, which, with its attendant discomforts, incapacitated him for some time. A note on the relationship of herpes to the ganglion extirpation has been made elsewhere.[30] On recovering from the discomforts of his herpes, he made rapid strides in gaining strength. His weight increased in the following two weeks from 107½ to 125 pounds, and since his return home he has exceeded his normal weight, namely, of 140 pounds. No ocular disturbances. He remains well.

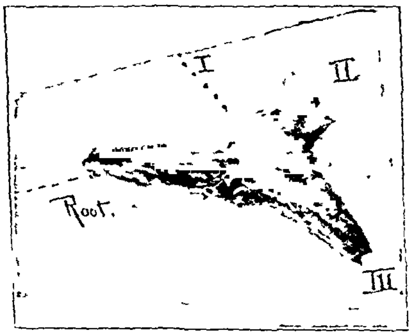

Fig. 30.—Ganglion from Case 18. Under surface showing motor root beneath the ramus mandibularis.

Case 19.—Mrs. A. R., aged 73, was referred to me by Dr. J. M. T. Finney.

History.—This patient suffered from a left-sided neuralgia, which had begun in the third division. It was of eight years' duration and was from the onset associated with intra-buccal pain, especially in the tongue. Her teeth had been extracted four years previously. In 1900, a peripheral operation, on the third division, had been done, with relief for only a few months. A second neurectomy was performed in 1902, with intraoral evulsion both of the inferior dental and lingual. Pain soon returned in the old areas.

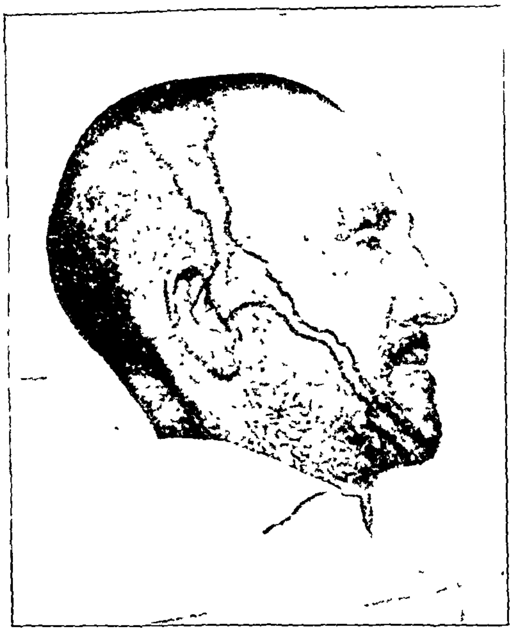

Fig. 31.—Case 18. Twelfth day. Typical lines of anesthesia for pain and touch.

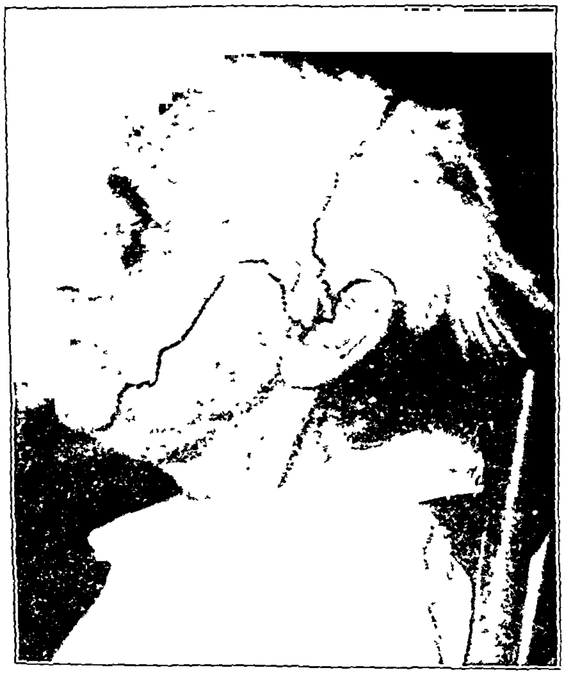

Fig. 32.—Case 19. Tenth day. Outline of tactual anesthesia alone.

Examination.—Examination shows a delicate, little, old woman, with a dilated heart, with albumin in the urine, with râles at the bases of both lungs, and with a very sclerotic radial artery. She is barely able to talk, owing to her pain.

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[30] Johns Hopkins Hosp. Bulletin, July, 1904, vol. xxv, p. 233.

Eating and swallowing are most difficult, and opening of the mouth and protrusion of the tongue are almost impossible. The paroxysms from the beginning have been limited almost entirely to the distribution of the *N. mandibularis*, although there has been some evidence of involvement of the second division.

Operation.—July 28, 1903; Church Home; chloroform. The extirpation proved to be a difficult one, as has been my unfortunate experience in all cases in women. Considerable bleeding was encountered almost from the onset, from skin incision, diploe, dura and neighborhood of the ganglion. Extraction of the latter was attempted, although its upper border had not been completely freed from the cavernous sinus, and it was found impossible to expose the root. The sensory root, unluckily, did not come away entire when the ganglion was evulsed, and together with the first division was left behind. As would be expected, there has been a subsequent slight return of sensation, with accompanying discomforts, in the territory of the first division, such as occurred in Case 12. The wound was drained.

Postoperative Notes.—For several days after the operation, accompanying the loss of cerebrospinal fluid, the usual postoperative headache was complained of. This, however, contrary to the usual rule, was bilateral and presaged the return of sensation in the forehead. No ocular palsies were present, but what was even more troublesome, an acute conjunctivitis followed the operation, with abundant discharge from the eye, so that for several weeks painstaking care was necessary to obviate the risk of any possible ulceration. There was a rapid postoperative gain in weight, from 100½ pounds to 120 (Fig. 32).

The wisdom of attacking the ganglion in this case might be questioned, and its performance was contrary to the usual operative requirements, namely, involvement of all three divisions. The patient's condition, however, was more serious than the history would indicate, for the intrabuccal nature of the pain rendered her incapable of taking nourishment, and the operation was urged by the patient, her friends and her physician. There is some disappointment in the result, for, though her neuralgia is relieved, there are some discomforts in the field of the traumatized first division, which was previously exempt.

Case 20.—A man, aged 32, a merchant, was referred to me by Dr. Martin of Montreal.

History.—Even before the onset of his neuralgia, he never enjoyed very robust health. The history mentions a severe typhoid infection with rib necrosis, double "hip disease," and on one occasion a pleurisy which led to a year's residence in Colorado. The neuralgia has been of four and a half years' duration, having originated without assignable cause in the maxillary division, great difficulty in talking, eating, etc., having been present from the first. The pain soon extended into the orbit and areas of the ophthalmic division; later into the mandibular areas. There have been weeks at a time when he has suffered from paroxysms of the most extreme type. All forms of treatment have been practically unavailing, though there have been occasional periods of remission in the intensity of the pain, one of these occurring while under the care of Dr. Ferrier after a prolonged treatment of electricity and hypnotism, so that for a time some doubt was thrown on the genuineness of the neuralgia. The pain returned with such intensity that in 1892 a peripheral operation was performed with evulsion of the inferior dental and infraorbital. Complete relief ensued for only six months with return of pain, which after a year has gradually approached its original degree of severity, with frequently recurring paroxysms of short duration but great intensity. He has courageously kept away from opiates.

Operation and Results.—June 21, 1904; ether. The operation presented no great difficulties. The extirpation was complete, including the trigeminal root and ophthalmic division. Convalescence was uninterrupted; the patient sat up on the second day and was out in one week. There was pressure palsy of the third nerve which began to clear up on the fifth day. The loss of senso-mobility in the face was so marked as to closely simulate for a time a true motor (facial) palsy; the muscles, however, reacted to faradism at all times.

ADDITIONAL CASES.

In addition to these 20 cases, given above, of actual or attempted extirpation for true neuralgia the ganglion has been removed for pain on two occasions when a basal neoplasm has compressed and more or less involved the structure. In one of these cases, admitted to the hospital by Dr. H. M. Thomas, a chondro-fibroma had grown through the floor of the middle fossa; in the other, a patient from Dr. Schmidt of Montreal, an endothelioma had originated near the ganglion. In both instances two operations were necessary, and in each case the ganglion was successfully removed, together with all visible local disease at the second sitting. Although these cases do not properly belong to this series, they served to furnish additional data which has been incorporated in the anatomic section below.

SUMMARY OF CASES.

Some particulars of these cases may be best brought out by summarizing data gathered from the individual histories.

The average age of the patients at the time of operation has been about 51 years: seven of them were over 60 and the oldest 73. Not to speak of his arteries, man is as old as he looks and feels, and were appearances to be relied on certainly fifteen years would have been added to the average age of these unfortunates in their neuralgic era. The prematurely gray head and toothless gums of most cases may, in a measure, account for this. Actual age, however, as Horsley has emphasized, is no bar to the operation; four of his cases were over 80. The average age at onset of the pain has been 41 years, the neuralgia having started in four cases during the second decade and in one case at 23 years. The youngest case operated on was 32.

Fifteen out of twenty have been men, possibly as the weaker sex has less often been allowed by friends or physicians to take the surgical bull by the horns; for the malady is supposed to be more common in women, though Bernhardt's opinion is contrary. In Krause's series there were 18 women and 7 men.

In twelve out of the fifteen cases in men, the right trigeminus has been involved; four of the five in women have been left-sided cases. It is possible that for this reason more complications have arisen in the latter group than in the former, for I have found a left-sided operation invariably more difficult and bloody than the right and, for me, the procedure on this side is somewhat more awkward.

Ten out of the series had had all of their teeth extracted; in others either the upper or the lower quadrant on the side involved (depending on the original distribution of pain) or both were found bare of teeth. Those in which the ophthalmic division was primarily attacked were more likely to have escaped this unfortunate measure. Of unilateral grayness I have seen only one case, though another (Case 12) gave a history of having become quite white on the neuralgic side (left) long before the hair on the opposite side began to change. This was primarily a supraorbital case and it is very remarkable that natural pigment has now, fifteen months later, returned, in large measure, in the hair of the beard and scalp, so that he looks like a much younger man.

It will be seen that I have not in all instances adhered to Krause's original dictum, that only those patients should be subjected to the ganglion operation in whom peripheral neurectomies had previously been given a trial. This, in general, is a safe rule, since it is impossible to foretell whether a simple neuralgia, involving only one or possibly two divisions, will eventually resolve itself into a true "neuralgia quinti major." Many of these moderately severe cases, even should they prove resistant to other and less radical forms of therapy, may be given sufficient relief by peripheral operations, which are absolutely free from all risk. If the condition: however, has advanced to its maximal stage, with involvement of all three divisions, it is only putting off an evil hour for the surgeon to temporize on the outskirts; the seat of war must ultimately be invaded. Krause has himself made exceptions to this rule, and in the above series, Cases 10, 12, 13, 15, 16 and 18 were operated on with no preliminary delay. Others, as Cases 1 and 2 for example, would have been much better off had the ganglion been removed early in the course of the malady, but this naturally could not have been foretold. And no surgeon would be willing to subject a young individual to the hazard of the operation merely on the probabilities of a life of pain. In three instances the ganglion was removed in cases which seemed to be rapidly approaching the major stage, but in which symptoms had as yet indicated participation in the disease of only two divisions. One of these had had no peripheral operations (Case 13) and has proven a most satisfactory case. The other two (Cases 5 and 19) each had symptoms in the second and third divisions alone; each had had two earlier neurectomies, and circumstances led me to remove the ganglion. The remaining cases all had had peripheral operations from two to eight in number, and at the final admission the territory of all three divisions of the nerve had become almost equally involved in pain during the paroxysms.

The neuralgia originated in eight instances in the periphery of the third division (*N. mandibularis*), usually in the teeth; in five instances in the second (*N. maxillaris*); and in six, in the supraorbital territory (*N. ophthalmicus*). In one instance, the second and third divisions were almost simultaneously involved at the onset. It is important to note that the divisions of the ganglion as the disease progresses are involved in sequence; that is, from the third, to the second, to the first. or in reverse order, or when the onset is in the median group of cells, then the first or the third become secondarily invaded. The disease never jumps, for example, from the third to the first, or vice versa; it is an extension disease, and the anatomic location of the separate groups of cells in the tripartite ganglion explain this manner of involvement.

Peripheral operations should certainly be limited to non-mutilating procedures. It is better to attack the ganglion early than to subject patients to extensive extracranial procedures directed toward severence of the main trunks at their foramina of exit like Carnochan's operation on Meckel's ganglion. There may be exceptions to this rule, and personally I regret not having made a provisional Kocher operation on the mandibular branch in Case 5. By proper manipulation. through simple peripheral incisions, the supraorbital and infraorbital nerves may be removed occasionally in their entirety, and through a trephine opening on the ramus of the inferior maxilla, or by an intrabuccal operation a considerable portion of the inferior maxillary or lingual nerve may be evulsed. On comparatively few occasions have I performed extracranial neurectomies, and then only through a straight incision within the hair margin. There is great variation from case to case in the length of subsequent relief. After the first peripheral operation, two years or more of respite may be expected, a period which unfortunately shortens after each operation, as is commonly known. Care must be taken that the incisions, especially about the eye, be not so placed as to cause any degree of ectropion or weakness of the orbicularis, since such a sequence may jeopordize the safety of the eye in case the ganglion be subsequently removed. When sensation begins to return in the anesthetic areas after these outside procedures, indicating the almost inevitable regeneration of the nerves, there are often attendant discomforts. A condition of "*hypæsthesia dolorosa*" supervenes, which may make the patient miserable from apprehension even before the true neuralgic pains return.

The most pitiable cases are those in which the tongue and palate are acutely involved for in some, even severe cases, the pain may be largely "outside," and the intrabuccal discomforts relatively mild. In the latter and more fortunate subjects, food, when it has once passed the lips, may be swallowed with little hesitation and talking, except for the labials, is not always difficult. The palatal cases, on the contrary, are usually the emaciated, the drooling patients, since every act of deglutition serves to inaugurate a paroxysm, and swallowing is postponed as long as possible. I have seen two individuals who preferred to take their nourishment while writhing in an exacerbation of pain which the act of swallowing could not intensify. It is more common, of course, to see them slip a spoonful of liquid nourishment into the sound corner of the mouth immediately on the cessation of a paroxysm and stealthily swallow it. These are the ravenous convalescents; those that rapidly put on flesh.

A perusal of the histories will show that eight of these patients (Cases 1, 2, 3, 6, 7, 8, 12, 16) presented in varying degree the most extreme type of the malady. In some of them, immeasureable suffering, of which we may form no opinion, had entirely broken down their self-control, so that from drugs and pain and exhaustion they were more like maniacs than persons properly at large. One of them (Case 16) was operated on as an emergency a few hours after her admission, as her screams disturbed the entire hospital; another like a crazed man in a cell had to be guarded the night of his arrival, as he had reached the end of his rope and threatened suicide if we would not operate immediately and kill him ourselves. Fortunately, such harrowing cases are rare. Other individuals with exceptional fortitude keep themselves more under control, perhaps even at work, though having, as John Donne has said, "such a pain as a constant man is afraid of and yet ashamed of that fear of that sense of pain."

One thing which particularizes the agony of these neuralgic paroxysms and which distinguishes it from other kinds of suffering is the vivid memory of its exact character which long remains. Suffering of other and milder kinds makes no such permanent and indellible impression. Acute though the memory of it remains even for years, happily, the subjective apprehension of its return soon goes; usually it is gone on recovery from the anesthetic, though this is not an invariable rule. One touching scene comes to my mind when, on the day following the operation, the patient's wife came into the ward and to the bed, took his hand and leaned over to kiss him. He involuntarily shrunk away before accepting the greeting, and apologizing, said, "she has not touched my lips for over two years." Though apprehension may thus linger, pain itself after ganglion extirpations immediately ceases, differing greatly in this characteristic from the effects of peripheral operations, after which the paroxysms, though in ever-diminishing severity, may persist for a few days.

POSTOPERATIVE COMPLICATIONS AND SEQUELÆ.

In consideration of their previous state of illbeing, their condition of malnutrition, their more or less protracted dependence on narcotics, together with the strain of a serious and more or less bloody operation, the majority of these cases have a remarkably uneventful convalescence. The demand for opiates, as a rule, ceases immediately when the need for them is withdrawn. This, however, is not always the case. Two of these patients—one with the most severe (Case 16), the other with a relatively mild type of the disease (Case 5)—have persisted in the use of the drug since the operation. The former patient, a "morphinist" for several years before the onset of the neuralgia, exhibited all the waywardness and capriciousness so vividly described by Clifford Allbutt[31] as features of the "moral anesthesia" produced by a long continuance of the habit.

The incision in 8 cases has been closed without the insertion of a drain. No wounds heal more kindly and with less visible scar than these temporal ones if care has been taken to carefully approximate the edges. In the remaining cases a small drain, usually of protective, has been placed in the auricular angle of the incision. A drain is undesirable if it can be avoided, since there are apt to be attendant discomforts, headache, backache and other ails during the days immediately following the operation, particularly if there is a considerable escape of cerebrospinal fluid.

I have been especially interested in the location of the intracranial discomfort in these cases, and have commented on it elsewhere.[30] The majority of the drained cases, one or two of the others, have complained for a few days of headache, which, with one exception, has been hemicranial and confined to the sound side. The exception (Case 19), a very bloody and difficult case, in a woman, proved to be an incomplete extirpation, and subsequent examination established a partial sensory return in the region of the ophthalmic division soon after the operation. In this patient the headache was bilateral. The observation would seem to speak in favor of a dural origin for intracranial pain, for the trigeminal neurectomy serves to render anesthetic the meningeal, as well as the mucous and cutaneous areas of trigeminal distribution on the side of the operation. With the exception of the area about the foramen magnum (pneumogastric supply), the entire dural membrane, the tentorium included, is innervated by the trigeminus, and it is tempting to speculate on these lines as to the relationship between pre-existing migraine or hemicrania and the subsequent neuralgia into which the former not infrequently develops. It is quite possible that this form of hemicrania may indicate a morbid process of the dural nerves, precisely akin to that which we more commonly associate with the cutaneous periphery, a process which finally extends to the ganglion, and in the course of time may involve its facial branches.

In two patients the convalescence, otherwise uncomplicated, has been interrupted by an outcrop of herpes, the unusual features of which have been the occasion of another paper.[28] In one case (Case 3), on the tenth day, and in another (Case 17), on the seventh day, an eruption of what ordinarily would have been considered a well-developed herpes facialis developed about the nose, lips and cheek. The area of anesthesia resultant to the ganglion extraction, however, remained absolutely free from vesiculation, although in one case it was quite surrounded by the herpetic outcrop. The observation, together with Howard's[32] finding that ganglion lesions accompany the labial herpes of pneumonia, points strongly toward a ganglionic origin for herpes of this type, as well as for the true zoster. Curiously enough, both cases gave evidence of a concomitant lesion in the lower sacral posterior-root ganglia shown by a symmetrical area of tenderness and hyperesthesia, which in one case went on to a unilateral vesiculation of the perineum; the other, having stopped short of the cutaneous lesion, was looked on as a zoster without eruption, which, as Mackenzie has pointed out, may be a not uncommon malady. Herpetism as a disease is well worthy of further study. Happily, neither of these cases has suffered from a subsequent post-zoster neuralgia; this would have been a sad tax to have levied on one who had already paid high with pain.

Stiffness of the jaw, of greater or less degree, usually appearing a few weeks after the operation, is a common sequel of the operation. Though ascribed by some to the proximity of the operation to the inferior maxillary joint, a much more probable cause is the shortening of the atrophied temporal and masseter muscles due to the fibrous change which they undergo. In one patient (Case 7) as a result of an operation on Meckel's ganglion, the temporal muscle had been paralyzed with a resultant stiffness of the jaw which prevented the separation of the teeth for more than 2.5 cm. In this case during the ganglion operation the maxillary joint was inadvertently opened and it was feared that even a greater disability would result than before. Quite the contrary took place, and despite the injured joint, the division of the fibrous temporal muscle sufficed to free the jaw so that a much wider opening has been possible since than before. Though only occasionally a troublesome feature of the early postoperative period, the contracture may at times be so great that patients must be encouraged to frequently wedge the jaws open in order to stretch the shortening muscles. Were it a serious or a more frequent complication, it might be advisable during the operation to sever the temporal muscle at its attachment to the coronoid process. Excision of the zygoma serves the same purpose, so far as the masseter is concerned, and this custom may account in a measure for the rarity with which patients in this series have complained of lack of ability to widely open the mouth. Instances of temporo-maxillary anchylosis have been reported, a sequel presumably due to sepsis. Wound infection, fortunately enough, has not occurred in our series.

The Condition of the Eye.—Of importance above all others are the post-operative ocular complications, which, since the first attempts to remove the ganglion, have been a great cause of concern to the surgeon and an equal source of interest to physiologists. It has been shown, alas, too frequently, that from one cause or another an enucleation of the eye may eventually be necessary, and it consequently is wise to have an understanding with patients and friends that relief from pain may demand this sacrifice. The patient rarely hesitates, if his neuralgia be of the major kind. Twice in this series enucleation has seemed advisable owing to what promised to be loss of visual function, though the eyeball itself might have been saved in each instance. The whole question of trophic control over the globe, supposed, according to Gaule, to be exercised by the ophthalmic division of the trigeminus, remains a somewhat confused one. It is commonly advanced as an argument, in favor of fractional removal of the ganglion, that preservation of the first division alone assures with any certainty the safety of the eye. This statement needs reservations, and I think is true only in case the ophthalmic division with its group of ganglion cells is left absolutely intact; if traumatized or injured in any way during the operation—and this is often unavoidable—its extraction, when that is possible, is much less likely to lead to harm than its attempted preservation. One is constantly impressed with the force of Dr. Weir Mitchell's statement that so-called trophic disturbances, whatever they may be, are not due to complete withdrawal of trophic control, as, for instance, by the complete severance of a nerve, but rather to interference with its normal function due to a partial injury and resultant irritative conditions. One of the patients (Case 19), whose eye became seriously inflamed after the operation, was a case in which, as the return of sensation in the forehead and eye showed, I did not completely remove the first division. In the cases of total extirpation, as a rule, no such disturbance has occurred. Neuroparalytic keratitis, as the simple result of the ganglion extirpation, need never occasion anxiety if proper precautions are taken to guard the eye, particularly for the few weeks succeeding the operation. Without entering into the controversy of trophic vs. non-trophic nerves, it may be said that our clinical experiences are thoroughly in accord with the experimental work of Hanau,[33] whose conclusions are that all changes of the cornea after trigeminal paralysis are only consequences of external influences on the eye, unprotected through its loss of sensibility, and that this applies as much to the slight initial lesion, an especial consequence of dryness, as to the extreme degree of keratitis (*der groben Nekrose*). Similar conclusions resulted from Turner and Ferrier's investigations, which showed that when the eye was protected, intentional wounds of the cornea in rabbits would heal as readily after section of the trigeminus as under normal circumstances. Pain of itself is, of course, a conservative provision of nature. Analgesia removes this protective agency, and especially in such a delicate structure as the eye with its poor circulation, a slight injury due to the presence of a foreign body, an eyelash, for example,[34] or the slight pressure of a dressing, etc., may pass unnoticed, and an ulcer or an infection be the result. One patient (Case 10), an oysterman, a few weeks after his operation, was on the water for a whole day in the bright sun with his eye unprotected, and a slight conjunctivitis was started up. This was treated by an ophthalmologist who, not appreciating the significance of the anesthesia, applied a cotton dressing under the usual four-tailed eye bandage. The eye remained open under the dressing, which in twenty-four hours had rubbed off the epithelium and produced a loss of substance in the cornea. Fortunately, the case was seen on the following day, and under a watch glass, with irrigation, the ulcer rapidly healed, leaving a slight opacity which, luckily, remains at one side of the pupil. He has had no trouble since, but is careful to wear dark glasses when exposed for any length of time to bright sunlight.

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[31] Allbutt: System of Medicine, vol. ii, 1897, "Morphinism."

[32] Howard: Amer. Jour. of the Med. Sciences, 1903, vol. cxxv, p. 256.

All who have had considerable experience with the ganglion operation have emphasized the fact that inflammatory disturbances are most apt to ensue when peripheral operations, perhaps repeated many times, have been carried out in the neighborhood of the eye. The scars resultant to these operations may in two ways lead to difficulties after ganglion extirpation. One of these, as Case 11 illustrated, is a lagophthalmos brought about by the juxtaposition of the ganglion incision, to the scar of an old infraorbital one, a combination which may serve to divide all the fibers to the orbicularis. Reunion of the fibers luckily took place in this instance, and it is interesting to note that a pressure palsy of the third nerve in this same case with consequent ptosis served to keep the eyeball covered with an immovable lid in spite of the temporary paralysis of the orbicular muscle. As Kocher and Krause have emphasized, it is important in all infraorbital operations not to make the incision parallel to the lower margin of the orbit, but obliquely and parallel to the facial fibers; the more so, since in this way another serious deformity, namely, a cicatricial ectropion, is thus avoided. It was a condition of this sort, added to inexperience in the treatment of the eye (no Buller shield was used) which led to the loss of the globe in one of my earlier patients (Case 4). A chronic conjunctivitis (trachoma), in addition to the ectropion, had long existed in this patient, had been untreated for years, owing to the great sensitiveness of the eye, and after the ganglion operation ulcers would form, and heal and reform, until finally it was deemed best to enucleate the eye, as the patient lived in a remote corner of the state where she could not be under observation.

There are many ways of safe-guarding the eye during the operative and postoperative periods. Sir Victor Horsley, Keen and others commend sewing the lids together either during the operative period alone, or for a few days subsequent to it, a procedure which the laboratory experiences would favor. This advice I have followed in one case without the conviction that any advantage attaches thereto. During the operation the eyes are covered with a broad piece of thin rubber protective, in order to prevent any possible irritation by ether fumes, and also carefully covered during the skin preparation to prevent the chance entrance of soap or of antiseptics. After the operation I have come to depend entirely on a Buller shield which, though originally devised for a different purpose, nevertheless possesses advantages which Dr. Keen has already emphasized; a large watch glass being used whose edges are covered with a circular ring of adhesive plaster so as to completely shut out the air. This protection should be worn for ten days or longer after the operation, the length of time depending on whether the conjunctiva remains reasonably free from injection after trial exposures; then worn only during the day, and finally discarded entirely. I always insist, however, on its being reapplied at any time during the first month or six weeks, when there is a greater likelihood than usual of conjunctival irritation from exposures of one kind or another, for example, during the journey home on a dusty train. A daily irrigation or not, according to the presence or absence of secretion, is advisable; otherwise nothing is needed. The chief object of this glass protection is to "hot house," so to speak, the eye and to insure moisture for the conjunctiva. Whatever may be the physiologic interpretation of the nervous control of lachrymal activity, there is undoubtedly for several days after a total extirpation an insufficient secretion of tears, and if the eye is not kept moist, the movements of the lids in winking or of the eyeball under them must rub and inflame the unlubricated membrane. This results in loss of the surface epithelium, which may lead to infection and ulceration, even when there has been no traumatism by a foreign body. It is gratifying that in all but three of the cases in this series there has been no inflammatory reaction whatever, and the anxiety lest it occur ceases in large measure with the resumption of normal glandular activities after the first two or three weeks. Krause observed in his cases a lessening of lachrymal secretion which Köster, who believes that the gland is activated by fibers from the facial through the great superficial petrosal, attributed to a probable injury of the latter nerve during the operative procedure. Wilbrandt and Sänger,[35] however, concluded an extensive review of the subject, with an expressed belief in the possibility of a variable nerve supply, by the facial, the trigeminus or the sympathetic alone, or by a combined action of all three together. Inasmuch as the secretory activity returns in large part, if not entirely, to its normal condition, and since regeneration of the fifth is impossible and injury of the superficial petrosal quite improbable in the operation above described, I have been inclined to ascribe the lachrymal disturbance entirely to severance of the sympathetic fibers, which in the complete extirpation are almost necessarily divided. It may be noted, in connection with the sympathetic paralysis, that in eight of the cases in this series there existed for some weeks a post-operative pupillary contraction, often noted at the close of the operation, and in many of them a slight though evident enophthalmos with narrowing of the palpebral cleft. The contracted pupil after a few days does not dilate with cocain, evidencing, according to Schultz, that the degeneration of the postganglionic fibers has reached the dilator muscles. With regeneration, as I have supposed, of these traumatized or divided sympathetic fibers, lachrymal secretion returns, the pupil regains its normal size and the enophthalmos, if it has been observed, disappears.

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[33] Arthur Hanau: *Experimentalkritische Untersuchungen über die Ursache der nach Trigeminusdurchschneidung entstehenden Hornhautveränderungen*, Zeitschrift für Biologie, 1896, vol. xvi, p. 146.

[34] Noteworthy in this connection is the fact that as an early consequence of the neurectomy the lashes become very much loosened and are shed in considerable number. I have not seen this commented on.

Oculomotor palsies have occurred with great frequency when the effort to remove the ganglion *in toto* has been successful, as may be seen by consulting the case-reports of those who thus deal with the structure. Fortunately, these paralyses are from pressure injuries, and are only transitory affairs. My personal record is as bad as it can well be, for in only four of the patients were there no postoperative palsies of any sort (Cases 3, 18, 12, and 19), and of these it will be seen that the last two were cases in which I did not succeed in entirely removing the cells of the ophthalmic division, as the early return of sensation in its cutaneous area demonstrated.

The commonest sequel has been an injury of the abducens, which is naturally accounted for by the anatomic proximity of this nerve to the upper edge of the ganglion. In eight cases of total extirpation there has been a resultant palsy, varying in intensity from a weakness which clears up in a few days to a marked internal strabismus, recovery from which has taken twelve weeks. It has never been a permanent lesion. In all of these eight cases the pupil has been contracted immediately after the operation, and has remained so for an indefinite period (weeks, months, and in one case, I believe, it has continued contracted). It reacts to light and to accommodation, contracts when eserin is dropped in the eye, dilates under atropin, but does not dilate with cocain, at least for the first few weeks after the operation. Krause's (1896) report stated that there were no postoperative pupillary changes whatever in his cases. On four occasions (Cases 5, 6, 9 and 16) there has been, in addition to the paralysis of the abducens, a slight palsy of the third nerve which has lasted only a few days. The pupil in these cases has also been somewhat contracted. Three times has the third nerve been injured alone (Cases 11, 14 and 20), twice severely with a dilated and immobile pupil, and once slightly. It was interesting to note, in the latter cases, that during the period of two weeks, when only the external rectus and superior oblique muscles functionated, in other words, when the third paralysis was seemingly complete, the pupils were the same size, reacted equally well to light, directly and consensually, and to accommodation. This would lend clinical support to the view that the ciliary ganglion is the chief reflex center for the iris, and that the third nerve may, under certain circumstances, be severely injured without affecting its activity.

In concluding this section, it may be pointed out that in the above series of cases there have been instances of ganglion extirpation, both with and without accompanying sacrifice of sympathetic fibers; instances of third nerve lesion with ptosis, so that the upper lid served to cover and protect the eye during the critical few weeks after the operation; and two instances of lagophthalmos, one transitory, the other (one of the tumor cases in which there was also a paralysis of the facial nerve) permanent, so that the cornea remained continually uncovered; finally, instances, one of corneal hyperesthesia and one of hypesthesia, due to only partial removal of the ophthalmic division—lesions, in fact, representing almost every combination claimed by one or another investigator as responsible for the production of neurotrophic keratitis, and yet in only one case (Case 4) of pre-existing ectropion with inadequate lid closure, a case in which no glass shield was used to keep the eye protected and moist, did a serious keratitis supervene. From the clinical experience, therefore, one very naturally inclines to the view that purely traumatic influences (as instanced in Case 10) or the combination of corneal dryness with infrequent (xerotic theory), or incomplete closure of the lids, alone play a part in the causation of corneal inflammation, and that the pure trophic, the tropho-traumatic, and the vasomotor palsy theories are hardly tenable.

(*To be continued.*)

Digitalis produces its good results by causing slower contractions of the muscular tissue of the heart, *thus giving* that organ more rest and nourishment. If you remember this, says Clemsha, in *Medical Council*, you will expect but very little from a worn-out heart, with marked degeneration of its muscular walls.

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[35] Die Neurologie des Auges, vol. II, Wiesbaden, 1901.

FLUORESCENCE ARTIFICIALLY PRODUCED IN THE HUMAN ORGANISM

BY THE X-RAY, BY RADIUM AND BY ELECTRIC DISCHARGES, AS A THERAPEUTIC METHOD.*

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The therapeutic method outlined in this paper and in previous publications consists in the saturation of the human organism in whole or in part with a medicine endowed with the property of fluorescence (or phosphorescence), and in then submitting this patient to the action of x-rays or of the radium radiation or of high-frequency currents. It is, therefore, a combined treatment. I have termed it artificial fluorescence.

The sum total of my object was to develop light within tissue in the confidence that the well-known external effects of this agency might now be duplicated internally and especially in the expectation that certain wave lengths of the visible spectrum, like the blue-violet and the yellow-green, might exert specialized effects. But it is also obvious that the wave lengths of the visible spectrum can not be reasonably supposed to be the sole output and resultant of the absorbed energy of the x-ray and of the radium radiations. Effects, therefore, may be attributed to transformations into other wave lengths, as, for instance, the ultra-violet or even into the well-known secondary radiations, lower in wave length than the x-radiations, but still akin to them in their property of not being refracted and dispersed as are the violet and ultra-violet. These secondary radiations in their turn set up fluorescence.

The main point is that by reason of the medicine administered to the patient a new set of radiations is set up within his tissues, and that the most obvious of these radiations is light itself or closely akin to it.

In science it seldom happens that ultimate truth is arrived at all at once. Usually prior observations have preceded, a great number of experiments have followed, a final deduction has been made, and this itself may after all turn out to be wrong.

So it is regarding the subject of my paper, but certain it is that artificial fluorescence by radium and the x-radiations is founded on a solid physical basis, applicable to living human beings, and that the clinical results obtained at least increase the percentage of cures in many diseases.

HISTORY OF RESEARCHES.

The steps leading up to the plan here presented of treating the entire blood system with a fluorescent substance and then submitting it to x-rays and to radium radiations are few but most interesting. They relate to a local use of the fluorescent substance by hypodermatic injections or by topical applications, and to the use of the Finsen light as an excitant. With these methods, I have had no experience, since my object has been not alone to affect superficial skin areas as in lupus, but rather to affect deeper areas like cancerous tumors, tuberculous glands and tuberculous lungs, carcinoma of the stomach, and chronic diseases like malaria or general conditions like pseudoleukemia. To accomplish this purpose, the medicine to be administered by the mouth must be harmless, but also fluorescent, and a radiation must be used which is able to excite fluorescence deep within the tissues. Obviously, the Finsen light radiation would not furnish the penetration required and topical administration would not reach the diseases desired. I therefore resorted to the Roentgen ray and to radium.

NATURAL FLUORESCENCE OF TISSUES OF THE BODY.

In 1845 Professor Brucke stated that the crystalline lens of the eye was fluorescent and the aqueous humor less so. In 1855 M. Jules Regnauld, using sunlight, found that the cornea fluoresced slightly, the crystalline lens highly, and the vitreous humor less so. In 1895 Setschenow of Moscow, in a series of careful experiments, corroborated these results. He observed that when the eye is brought into the focus of the ultra-violet rays, immediately the cornea and the lens begin to glimmer with a white-blue light. Dr. Henry Bence Jones[1] not only repeated these experiments on the media of the eye, but also, as a result of careful researches, made the very remarkable discovery that man and all animals possess in every part of the body a fluorescent substance resembling quinin. This substance he found to be an alkaloid and to be closely related to quinin. He named it "animal quinoidin." He found that this animal quinoidin was present uniformly in extracts of the liver, heart, spleen, lungs, kidneys, brain, nerves, muscles, cartilages, blood, bile and humors of the eye. The fluorescent substance did not disappear from lenses that had been kept for months in glycerin.

Using a spark from a Ruhmkorff coil as a source of light, Jones determined distinct fluorescence in a solution of one grain of quinin to 1,000,000 parts of water.

Dr. Chalvet[2] found that Dr. Bence Jones' fluorescent substance exists in various foods and even in wine, and is, therefore, probably not of an animal but vegetable origin.

In 1858 Drs. Edward Rhoads and William Pepper published[3] a "Contribution Toward Our Knowledge of the Pathological Changes in the Fluorescence of the Tissues." They confirmed Bence Jones' results, and then advanced the original idea, based on an examination of the blood in a number of cases, that "a close connection exists between the diminution of animal quinoidin and malarial diseases." They therefore gave quinin to increase the fluorescence of the tissues to its normal point.

In 1900 Dr. A. F. A. King[4] of Washington, D. C., resurrected these publications of Bence Jones and of Rhoads and Pepper, in connection with his theory and suggestion of placing malarial patients in the dark or in rooms with violet or purple window hangings. Dr. King bases his suggestion on his belief that the sporulation of the plasmodium of malaria can not take place in the dark, but only in light and more especially in red light. This treatment corresponds, of course, to the red light or Finsen treatment of smallpox.

In 1900 Professor von Tappeiner[5] in conjunction with Dr. O. von Raab, tested the action of the fluorescent light of phenylacridin on infusoria. Paramecia in an acridin solution of 1 in 20,000 died in sunlight in six minutes, in diffused daylight in about sixty minutes, but if kept in the dark they were alive after 6,000 minutes, viz., after 100 hours. Von Tappeiner summarizes the results of his and von Raab's experiments as follows:[6] "Light becomes highly injurious to paramecia in the presence of acridin, phenylacridin, eosin and quinin in solutions in which these substances in themselves (in the dark) are hardly, if at all, poisonous. This action of light is closely connected with the fluorescent quality of the substances named. The injurious power, however, lies not in the fluorescent light produced, but in the process of its production."

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*Read at the International Electrical Congress of St. Louis in Section H, Electrotherapeutics, 1904.

[1] Proceedings of Royal Society, April, 1866, and "Lectures on the Application of Chemistry and Mechanics to Pathology and Therapeutics," London, 1867.

[2] Gazette Hebdomadaire, second series, vol. v, 1868.

[3] Pennsylvania Hospital Reports, 1868.

[4] Vermont Med. Monthly, June, 1902.

[5] Münchener med. Wochens., 1900, No. 1.

O. von Raab surmises that we have here a conversion of the energy of the light rays into chemical rays analogous to that of chlorophyl, which is also a fluorescent body, but with this difference, that this conversion is the cause of death to the paramecia, whereas to plants it is the condition of continued life.

Von Tappeiner holds that this kind of light action comes into play with those animal organs, skin, retina, blood and lymph serum, which have the capacity for fluorescence. He surmises, too, that the cause of the skin inflammation noticed by Wedding, in beasts fed on buckwheat, lies in the fact that substances get into the body which are capable of fluorescence.

Von Tappeiner concludes his article with the suggestion that fluorescing substances, by being applied to the part and subjected to light, may be employed in dermatology, just as eosin and other fluorescing substances have been empirically employed for the last ten years in photography as "sensitizers."

In 1901 H. Lieber of New York made experiments with agar agar solutions inoculated with common mold and further experiments with grape and other fruit juices, and found that fluorescent substances, like solutions of fluorescin, eosin or rhodamin, arrested fermentation in every case so long as the solutions were exposed to daylight, but that the fluorescent substances had no perceptible effect on the solutions when kept in the dark. These principles he applied to the preservation of foodstuffs.

In June and August, 1903,[7] and later on, I[8] published a plan of saturating the entire system by administration of fluorescent medicines and submitting parts or the whole of it to *x*-rays and radium radiations, after, however, recording a series of experiments on patients from January, 1900, onward. In November, 1903, was published[9] the experiments of Dreyer on "Light Treatment" by the method of "sensitizing" tissues, already suggested by von Tappeiner. This article, brief but most interesting and important, was a résumé of a report of investigations made to the Danish Academy of Sciences in April, 1903. Dreyer adopted the plan which has long been used in sensitizing photographic plates of adding to the bromid or chlorid of silver solution certain substances which are generally of a fluorescent nature. Infusoria, bacteria and animal tissues thus impregnated and submitted to the action of the Finsen light were affected by the green to orange rays exactly, as without the use of the sensitizing agency they would have been affected by the ultra-violet rays. The importance of this plan is evident, for it is the red to green rays of the arc lamp which easily penetrate tissue, while the ultra-violet penetrate but very slightly. By the Dreyer sensitizing method the scope of the Finsen treatment for lupus, etc., would be greatly extended and simplified, the effect would extend more deeply, the area be more extensive, and the pressure device be unnecessary. Dreyer used principally erythrosin in a solution of 1 to 4,000, a solution perfectly non-toxic, except under the influence of the arc-light radiation.

The following table is most instructive. Using a 30 ampere lamp, a quartz and water-cooled vessel, and erythrosin, *different* rays of the spectrum were tested. Micro-organisms were killed in the time and under the conditions given below:

Color filter used.	Acting rays.	Infusoria.		Bacteria.	
		Sensitized.	Normal.	Sensitized.	Normal.
Quartz.	Entire spectrum ultra-violet.	10 sec.	100 sec.	60 sec.	80 sec.
Glass.	Visible spectrum.	10 sec.	9 min.	10 min.	10 min.
Solution, nickel-sulphate.	Red-orange, yellow, green, blue.	10 sec.	13 min.	10 min.	10 min.
Blue glass, monochromic.	Red, orange, yellow, yellow-green.	10 sec.	70 min.	15 min.	Over 4 hours.
Acid potassium, double chromium.	Red, orange, yellow-orange.	10 sec.	110 min.	25 min.	Over 9 hours.

The above table shows that it is the yellow-green rays to which the micro-organisms are rendered sensitive.

Dreyer also sensitized animal tissues by hypodermatic injections of erythrosin, so that the yellow rays, otherwise without effect, would now cause an inflammatory reaction such as is caused by the violet and ultraviolet rays.

Professor Neisser and Dr. Halberstaedter[10] review and amplify the work of Dreyer. Neisser makes the following remarks as to the cause of the action:

1. The occurrence does not depend on fluorescence, because there are sensitizing materials which do not fluoresce, and fluorescent materials which do not sensitize.

2. The occurrence does not depend on the absorption of certain rays, because there exists a number of fluorescing and non-fluorescing materials which absorb the same rays as erythrosin, and yet do not sensitize.

3. The process can not be accounted for by the formation of toxic substances in the sensitizer during the illumination, because if one first subjects a sensitizing fluid to light, and afterward puts micro-organisms into the fluid, these germs are not killed.

Jesionek[11] discusses the therapeutic applications of fluorescent substances in various diseased conditions after the method of Tappeiner just referred to. The skin was painted with solutions of fluorescent substances and then submitted to sunlight, concentrated by lenses or not. A solution of eosin was most commonly employed. In cases of carcinomatous growths parenchymatous injections of 0.1 to 0.01 per cent. solutions were used.

In July, 1904, [11½] Gunni Busck advocated exposing malarial patients to whom quinin had been first administered, to sunlight, on the ground that quinin causes micro-organisms to be sensitive to light. I had already considered the possibility of this plan in my first publications and wrote: "As to sunlight as an exciting cause of fluorescence, it is to be noted that light passing through a red screen, as, for instance, *the blood*, fails to excite fluorescence, while the x-rays and radium radiations readily penetrate this screen."

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[6] Quoted from Freund, p. 519.

[7] Electrical World and Engineer, June 20, 1903; Med. Record, Aug. 8, 1903.

[8] New York Med. Journal, Feb. 13 and 20, 1904.

[9] British Med. Jour., November, 1903.

[10] Deutsche med. Wochens., Feb. 18, 1904.

[11] Münchener med. Wochens., May 10, 1904.

[11½] Amer. Jour. of the Med. Sciences.

On the whole, the fact is well established that quinin solutions when subjected to light exert a deadly influence on some micro-organisms. Ullman has found that paramecia placed in solutions of quinin of 1 to 20,000 die only after standing about five hours in the dark, while they are killed in the course of eight minutes, if placed in sunlight, and under conditions which usually have no deleterious influence on the paramecia.

WHAT IS FLUORESCENCE?

Fluorescence is the property which substances have of absorbing invisible or visible rays and giving out visible light. The fluorescent substance does not give out the same wave length as that which it receives. According to Stokes' law, it should give out a wave length of lower frequency, namely, the shortest wave length of the fluorescence spectrum is always of less refrangibility than the longest wave length capable of exciting fluorescence. Lommel[12] has shown, however, that solutions of fluorescin, eosin and naphthalin red do not conform to Stokes' law, and Nichols and Merritt,[13] in recent investigations, show that rhodamin, resorcin blue, quinin, chlorophyl and esculin also do not even approximately conform to this law. The fluorescence of quinin sulphate appears to be independent of the wave length of the exciting light.

Fluorescence and phosphorescence are much akin. The former lasts only so long as the exciting cause is maintained; the latter endures after the excitation has ceased. Substances like willemite exhibit both properties. According to Becquerel, fluorescence is only phosphorescence of short duration.

Sunlight, electric discharges, ultra-violet, the Roentgen and Becquerel rays, all excite fluorescence and phosphorescence. It is precisely these rays whose biologic effects are now under discussion therapeutically, and the very pertinent question arises, Is not the now familiar and ordinary curative effect of these various rays due to their common property of exciting fluorescence or even phosphorescence? Or, put in a broader sense, is this curative effect not due to secondary radiations, invisible, as well as visible?

That the effects of the x-ray may be due to the fluorescence of the tissue elements themselves is an opinion I have long held and expressed.[14] This opinion is also guardedly put forth by L. Freund in his incomparably excellent book on radiotherapy, page 336. He says: "It seems, moreover, not impossible that x-rays induce fluorescence in those tissue elements capable of this phenomenon, and that this process brings about chemical changes, especially in the cells. In this respect those tissues which contain earthy matter would appear to possess some affinity to the bromid of silver gelatin, while other tissues which have no fluorescence capacity remained unharmed by the rays."

Goldstein[15] argues that since Roentgen rays, when they impinge on bodies, produce ultra-violet rays, of very short wave length attributes to this ultra-violet light those biologic effects produced in the deeper layers of the skin by Roentgen radiation.

Freund combats this view on the ground that biologic effects are not produced in internal organs, heart, liver, etc., where the Roentgen rays equally penetrate. Many experiments on the lower animals have demonstrated that profound lesions of internal organs are produced. In my own experience I can never forget the peculiar, crispy, cartilaginous feeling of the cutting knife in a deep dissection for the radical removal of a carcinomatous breast, removed after three months of Roentgen treatment. Both the pectoralis major and minor were *cornified as verified by subsequent* microscopic examination.

But whether or not simple x-ray treatments produce in normal tissues either ultra-violet or fluorescent rays, is not the question. The possibility of such being the case is merely mentioned as constituting collateral confirmatory evidence. My method, of course, is to permeate tissues and cells with a substance known by prior laboratory experiment to be actually fluorescent and known to retain this property when in the blood, and then to artificially excite this fluorescent quality in the combined fluids. The method is positive and demonstrable apart from theoretical considerations, and its curative results are matters of clinical observation.

Certain it is, as evident by foregoing statements, that fluorescence and phosphorescence are natural properties of living animal tissues.

These two phenomena of light exist naturally in some infusoria, bacteria, insects, deep sea fishes, and, as we have seen, in the tissue of human beings. In the human being, as in the other living organisms mentioned, this fact must have a meaning, since every function or ingredient of the organism means something. It is *simply a question as to whether this intrinsic* phenomenon can not be artificially utilized as a therapeutic measure.

Is the specific action of some well-known drugs due to their fluorescent properties?

As already mentioned, Rhoads and Pepper, in 1866, acting on the demonstration of the normal fluorescence of the blood by Dr. Bence Jones in 1866, presented the reports of 12 cases in which they claimed that quinin cured by increasing the fluorescence of the blood in cases of fever. In these cases they demonstrated a prior diminution of the natural fluorescence of the blood.

Dr. A. F. A. King[4] of Washington, in his interesting article referred to on "Sunlight and Malaria," argues that the malarial parasite is a naked ameba, that red light promotes the vital activity of amebæ, while violet or purple restricts it; for instance, *amœba proteus* streams in the presence of red light, and ceases to stream in light from the violet end of the spectrum. The color of the light diffused through the blood is red, as one may see by holding the hand in front of a candle. Therefore, the malarial ameba, while thriving in red light, would thrive poorly or perish *in light from the violet* end of the spectrum. In this manner he would explain cures of malarial fever by methylene blue, by Prussian blue, and by iodin, which last becomes in the stomach purple iodid of starch, and by quinin, esculin and fraxin, all of which are "antiperiodics" in ague and fluorescent.

I would suggest another reaction which may have a bearing on the curative and antiseptic action of the salicylates.

It is well known that the salicylates give a beautiful violet reaction with peroxid of iron. Supposing that salicylates are administered medicinally, where is the peroxid to be found? In many diseases, most amenable to the action of the sa[illegible] th[illegible] is a great destruction of the blood [illegible] formation of pigments in the organism. According to Hugouneng,[16] all of these pigments are rich in iron. Sometimes peroxid of iron occurs, probably from the destruction of hematin, which chemically contains iron. Here, therefore, we may have another "color" explanation of the effect of the medicine administered.

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[12] Poggendorff's Annalen, vols. cxliii, clix, clx.

[13] The Physical Review, July, 1904.

[14] Med. Rec., Aug. 8, 1903.

[15] Quoted from Freund.

Quincke[17] showed that hemoglobin gives off its oxygen more quickly in the light than in the dark. For this reason, light increases the oxidizing power of the blood and correspondingly increases the processes of oxidation. The salicylates, therefore, may promote in this manner metabolic exchanges due to the violet light set up in the blood corpuscle by reason of a combination with the peroxid of iron set free in the decomposition of the corpuscle.

FLUORESCENCE OR SENSITIZATION?

The experiments quoted of Tappeiner and Raab and of Dreyer and Halgerstaedter prove beyond question that some non-toxic fluorescent and non-fluorescent substances, under the excitation of the arc-lamp radiation, kill infusoria and bacteria and cause inflammatory reaction of tissue. This action is ascribed by them to a certain "sensitizing" effect of the same nature as occurs by the use of the same substances in photography.

What, then, is sensitization, especially in photography? The effect of light on the sensitive material of photographic plates has long been familiar, but the nature of the reaction between the ether radiation and the sensitive material is not understood. It is not enough to claim that this reaction is simply a chemical one, and say that the chlorin or the bromin of the Ag Cl or Ag Br is in unstable equilibrium and is jostled off of its molecular combination by the impingement of the radiation. This simple statement of the case is negatived by numerous objections. For instance, many substances added to the silver emulsions greatly enhance the amount of silver salts set free. Such substances are termed in photography "sensitizers." Prominent among them are gelatin and eosin. It is, for example, a curious fact that the *x*-ray will not affect a collodion bromid of silver plate. We must conclude, therefore, that instability of the silver salt is promoted by the proximity and by some action of the gelatin. What the exact action of the sensitizer is, is not yet explained by chemistry.

The commonly received opinion is that by reason of the ether impulse a part of the bromin is separated from the silver and absorbed by the gelatin, and, as throwing further light on the process, it is believed that the action of the sensitizer is to increase the capacity of the decomposed salt to absorb oxygen. On the contrary, chlorid of silver in a sealed vacuum tube, and thus out of contact with oxygen, remains unaffected after months of exposure to light. But also, silver chlorid free in the air, but unexposed to light, retains its white color. It would thus appear that both light and oxygen must be mutually present, and further, that in some unexplained manner the "sensitizer" provides the oxygen.

From this point of view, it is pertinent to recall that Sir Oliver J. Lodge has suggested that the therapeutic value of *x*-radiation lies in production of ozone within the irradiated tissue. Granting this, a tissue impregnated with a sensitizer would be richer in oxygen and we should thus simply enhance the effect of ordinary *x*-radiation. Against such a conclusion is the received fact that the *x*-ray produces no such pronounced action in deep as in superficial tissues, although it penetrates to the deeper tissues. L. Freund, as quoted, suggests that in the case of tissues rich in mineral constituents the minerals act as sensitizers.

These facts are all interesting, but they are not final —they explain without explaining, and for the present I am content to believe that in fluorescence, namely, in light, or in the invisible radiations of the same nature of ether vibration, we have a causation which is as fully explanatory of the effects in question as our present knowledge will justify. For this reason I have preferred to term the method I have advocated "Artificial Fluorescence" of living tissue. Possibly, reasoning by analogy, we may draw the deduction that just as by the intervention of the fluorescent substance chlorophyl, the all-pervading agency of light, causes a supply of carbon to the plant kingdom, so, under the influence of the same light, intervening fluorescent substances cause a supply of oxygen to the animal kingdom.

EXPERIMENTS.

Among liquid fluorescent substances may be named quinin, esculin, fraxin, eosin, fluorescin or uranin, rhodamin, cochineal, copper potassium chromate, gentian, henbane, litmus, naphthalene red, paraffin, petroleum, vaselin, stramonium, tumeric indigo, safranin, pavlin, magdala red, thallin, resorcorufin and resorcin blue, and some salicylates.

It was quickly found that while the above substances were fluorescent to daylight, a great variation in their capacity for fluorescence existed when exposed to *x*-radiations and to radium radiations. Some substances non-fluorescent to sunlight are vividly fluorescent to the *x*-ray and to radium, and vice versa. Among those most fluorescent to radium are quinin, uranin, fraxin, esculin and members of the petroleum series, like vaselin.

Experiments made with liquids in glass receptacles were valueless because the glass itself is highly fluorescent to the *x*-ray and to radium. Radium radiations are, on the whole, superior to the *x*-ray in exciting fluorescence. Many fluorescent liquids absorb the *x*-rays or radium radiations and therefore cast a shadow corresponding to the ordinary density shadow in radiography. This would seem to constitute a new sort of skiagraphy.

Applying this principle, I caused a subject, Dr. W. E. Deeks, to take twenty drops of a 1 to 30 aqueous solution of uranin, and one hour later submitted the hand to an ordinary *x*-ray exposure. The negative and print obtained when compared to a control picture of the same hand under the same conditions, except as to the dosage of uranin, gave an *x*-ray picture immensely superior in detail and clearness. This was especially true of the osseous structure and would lead one to suppose that certain portions of the bony structure when saturated with uranin absorbed the *x*-ray to a greater extent than if the uranin had not been used. These pictures make an interesting addition to skiagraphy, and are here exhibited (Figs. 1 and 2).

A further interesting outcome of experimentation was the discovery of a new fluorescent liquid, fluorescing a very deep purplish blue so deep that when concentrated it appeared almost black, but a drop of it added to a test tube filled with water gave a fluorescence as blue as that of esculin. The observation arose in this manner: Test tubes in which fluorescent solutions of esculin were allowed to stand during one or two weeks were found, themselves, to have become intensely fluorescent after being emptied and carefully washed out and dried. Such a test tube casts a shadow on a screen or gives a photographic print as dark as ordinarily would be caused by a piece of lead one-quarter of an inch in thickness. It would seem that an esculinate of silica or a silicate of esculin had been formed. I have submitted some of this fluid to Professor Bogert of Columbia University for analysis (Fig. 3).

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[16] Gazette Hebdomadaire de Med., quoted from Med. Rec., July 5, 1902.
[17] Quoted from L. Freund.

An analogy between the dark bones of the hand and the dark test tubes can not fail to be noticed.

Granting the entire soundness of the physical facts of fluorescence as demonstrable by laboratory experiment, it is still important to know if the actual living tissue of a subject whose blood is impregnated with a fluorescent substance can exhibit fluorescence.

The following experiment demonstrates that such is the fact: Administering to the patient as above, twenty drops of a 1 to 30 aqueous solution of uranin, one hour later on, fold the lobe of the ear closely over an aluminum tube containing 20 milligrams of radium bromid of 1,000,000 radioactivity. If the experiment is done after remaining from fifteen to twenty minutes in the dark a faint glowing spot on the ear can be observed, not observable in a control experiment where uranin has not been employed. The same experiment may be made with the alæ nasi, and perhaps preferably on the thin fold of skin at the junction of the fingers with the palm.

RADIOACTIVE WATER AND FLUORESCENT LIQUIDS ADMINISTERED CONJOINTLY.

Doubt has been thrown on the possibility of radioactive fluids. There is no ground for this doubt. Such fluids promptly discharge an electroscope and retain this property for eight days if the fluid is kept in tightly corked receptacles. In a specimen furnished by me to Professor Pegram of the electrical department of Columbia University the radioactivity was at least one-half that of uranium oxid taken as a standard. If radioactive water is used to prepare fluorescent solutions, the fluorescence is highly augmented.

For this reason I administer to my patients under treatment by fluorescent fluids a tablespoonful of radioactive water morning and night.

It may be asked, but what effect has the radioactive water on the living being? Demonstrably, the water absorbs the emanations of radium and holds them for a considerable time, becoming now a secondary source of radiations similar to the original gamma rays. The charged water excites internal fluorescence.

CLINICAL EVIDENCE.

In a combined treatment, employing as I do the *x*-ray or radium, radioactive water and fluorescent fluids, which, where cure is affected, is the especial curative agency? I regard the fluorescent fluid as the basic agency and the radiations as excitants merely of the fluorescence. I regard it as essential, if one is to obtain the best results in the treatment of cancer, lupus, tuberculosis, Hodgkin's disease, eczema, psoriasis, etc., etc., to administer fluorescent remedies. Whether these fluids act as "sensitizers," whether they allow of the production of more oxygen by ionization as the *x*-ray and radium may act, thus augmenting the action of the latter at deeper situations, or whether the fluorescent light itself acts, as I believe, as does ordinary light and sunlight—these questions no one as yet can answer.

In support of the latter view, we may briefly summarize the action of light. Absorbed light in nature, while usually transformed into heat, may also, as has been said, be transformed into fluorescence and phosphorescence, may produce chemical effects as in photography, or in determining other chemical combinations, and may cause electric or mechanical phenomena.

Under the influence of light, plants absorb carbon and give out oxygen. They decompose the carbonic acid gas of the air by aid of chlorophyl.

Physiologically, light acts on the protoplasm and thus modifies vital processes. Its effect is both stimulating and irritating or destructive. According to Loeb,[18] "light is not only an irritant in a physiologic sense, but it actually infuses the organism with energy which is transmitted into other forms, for the most part of a chemical nature."

That light kills some bacteria is now established beyond dispute by the experiments of a host of observers.

The effect of light on animal organisms, including man, forms a most interesting chapter by itself. Light acts as a stimulus to the animal functions. Frog spawn in an opaque glass die, in transparent glass they develop normally. Darkness hinders and prevents the growth of many of the lower forms of animal life. Young mammalian animals, including children, develop more perfectly in light. Ciliary movements of epithelium in grown animals are modified by light. Light stimulates the action of unstriped muscular fiber and it stimulates pigment cells; it modifies the quality of the skin, reducing protoplasm to keratin; it produces intense inflammation of the skin. "The hemoglobin gives off its oxygen more quickly in the light than in the dark, hence light increases the oxidizing power of the blood, and correspondingly the process of oxidation in the human body." (Freund.) Some observers claim that light modifies the oxidation of the tissues. Many experiments tend to show that light also modifies metabolism by direct action on cells; others, however, deny this. Experiments also show that light modifies the temperature, respiration and the pulse.

APPLICATIONS IN DISEASE.

I employ quinin bisulphate in doses of from five to fifteen grains daily, according to the natural physiologic tolerance of the patient—fluorescin, a 1 to 30 aqueous solution, from six to twenty drops, three times daily, one hour after meals—esculin, from five to fifteen grains daily.

One patient has now taken, in treatment of an extremely obstinate case of lupus, ten drops of the fluorescin solution three times daily during the last three months and, employing the *x*-ray, not only has his lupus healed over large areas, but also he has gained thirty pounds in weight in the three months. Both in hospital and in private practice my cases of lupus heal more rapidly and get permanently cured by this method and in less time than by any other method I have used.

I have ready to report six patients with tuberculous glands of the neck, two already subjected unavailingly to numerous surgical operations for removal who are now perfectly well. One case of tuberculosis of the hip joint is making excellent improvement.

In tuberculosis of the lungs the method is giving good results, not yet ready to be reported on *in extenso*.

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[18] Quoted from Freund.

In from one to three days after beginning treatment a reaction occurs. The afternoon temperature in a recent case rose from normal to 103 F. The cough, night sweats and lassitude increased. Examination of the sputum at this time revealed an enormous increase of the number of tubercle bacilli. This reaction lasted about a week and then the temperature gradually fell to normal, with corresponding improvement in the other symptoms. The patient then entered on a stage of steady gain in weight and comfort and personal appearance. The case is under most rigid observation by skilled consultants and will be reported on later.

It is interesting to observe that the course of events in this and other cases follows accurately that described by Dr. Chisholm Williams[19] of London, England, in his forty-three published cases, treated by him by high-frequency currents, and with such brilliant results. Of his original forty-three cases, he writes: "Three have died; the rest, thirty-two, have had no treatment of any kind whatever for over eighteen months. Eight cases had, *on an average, two months'* treatment each since that time. This year none of them has needed treatment. The majority, who are workers, are performing their usual duties. The three deaths were due to pneumonia, tuberculous kidney, and lardaceous disease."

Dr. Williams remarks further, "There is reason to believe that currents act in these cases in the following manner: First, on the tubercle bacilli themselves by making them pursue the same course as if they were under the *x*-rays." According to the experiments of Dr. Forbes Ross and Norris Wolfenden,[20] in their paper, "Effects Produced in Culture of Tubercle Bacilli by Exposure to the Influence of an X-ray Tube," they observe that the bacilli rapidly increase in numbers and have a tendency to form clumps, then get small in numbers and shape, and take the microscopic stains very readily, but are pale in color. They say, in conclusion: "There is not the smallest doubt that *x*-rays stimulate them to excessive overgrowth, and only affect them adversely by attenuation from overgrowth."

Dr. Williams continues: "In my experience, much the same process goes on under the high-frequency treatment. The tubercle bacilli, which are usually present in fair numbers, quickly begin to increase and, after a few applications, are greatly increased; they soon, however, form clumps and get misshapen, short and stumpy, and generally curved, and take the stain more readily than before. After a time they begin to decrease in numbers and later, when the patient is obviously getting better in every respect, they may cease entirely, and may appear in the sputum after weeks of absence."

It should also be mentioned here that not only does the fluorescent method exert a direct remedial and curative action in phthisis, but it also has afforded me, and others to whom I have demonstrated it, a more accurate means of physical diagnosis as to the location and size and extent of pulmonary lesions. When one examines the thorax by the *x*-ray and the fluoroscope,

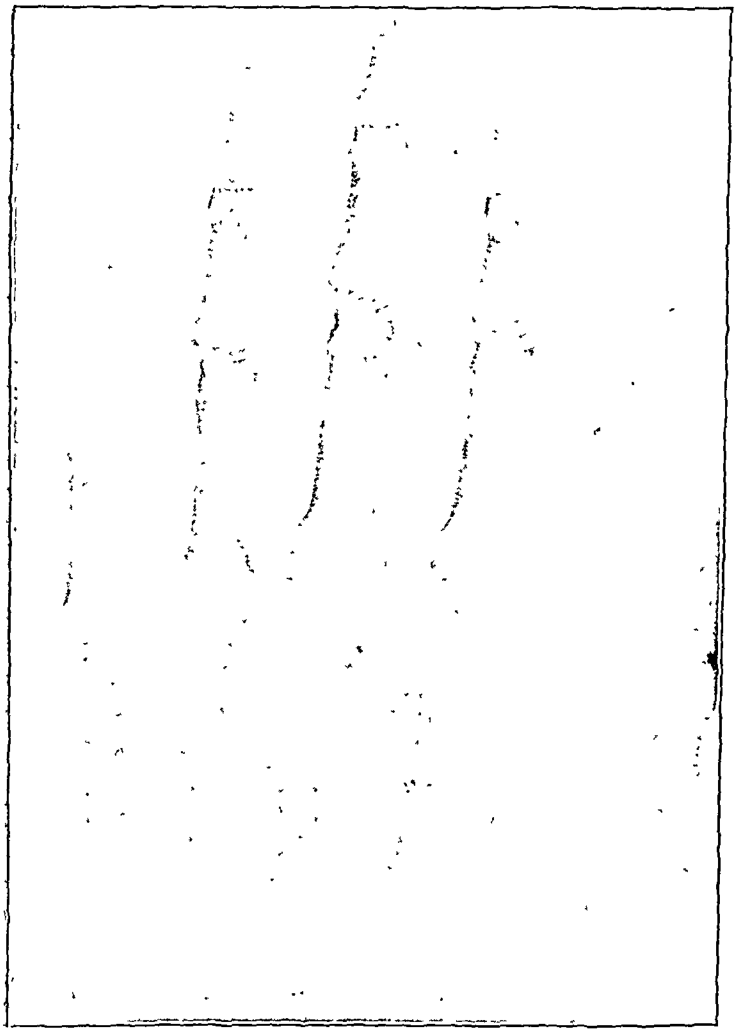

Fig. 1.—Normal skiagraph.

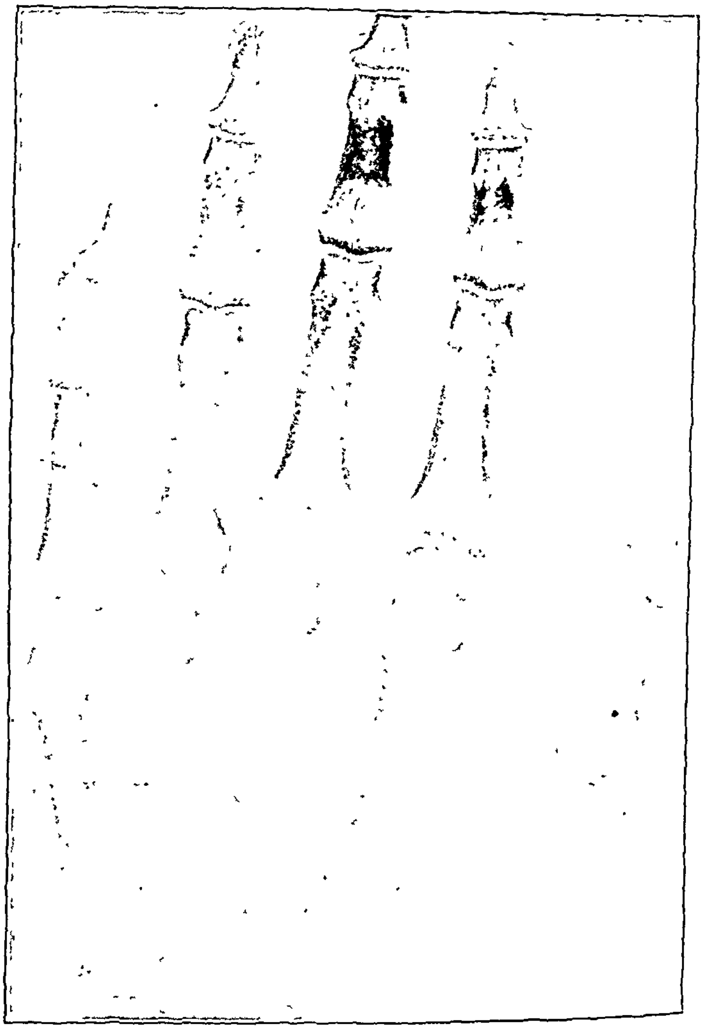

Fig. 2.—Skiagraph of same hand, under same conditions, after administration of fluorescin.

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[19] High Frequency Currents in the Treatment of Some Diseases, London, Rebman, Ltd., 1903, pp. 166-173.

[20] Archives of Roentgen Ray, August, 1900.

first without the administration of fluorescin (or other fluorescible solution), and second, after it has been administered, one is struck by the great difference. With fluorescin, the lesions are more easily distinguishable, they cast a darker and clearer shadow on the fluoroscope, which in its lighter portions is at the same time more brilliantly illuminated. In a word, contrasts are greater and definition clearer. A skiagraph shows the same relative improvement in definition, as already pointed out in the illustration of the hand (Figs. 1 and 2).

In cancer I summarize only two cases briefly from my notebook. They are typical of many others illustrating the superior efficacy of the fluorescent method over x-ray treatment alone.

Case 1.—Mrs. E. E. A., Jan. 28, 1904.

History.—Six years ago a tumor in the right breast and a gland in the axilla appeared. The entire breast was removed by Dr. W. E. Brown and pronounced carcinomatous. Cancer returned and extensive surgical removal was resorted to. Cancer again recurred and patient resorted to the use of the x-ray, but to no avail. Four months ago the right arm began to increase in size and grew quite large. She then came to me.

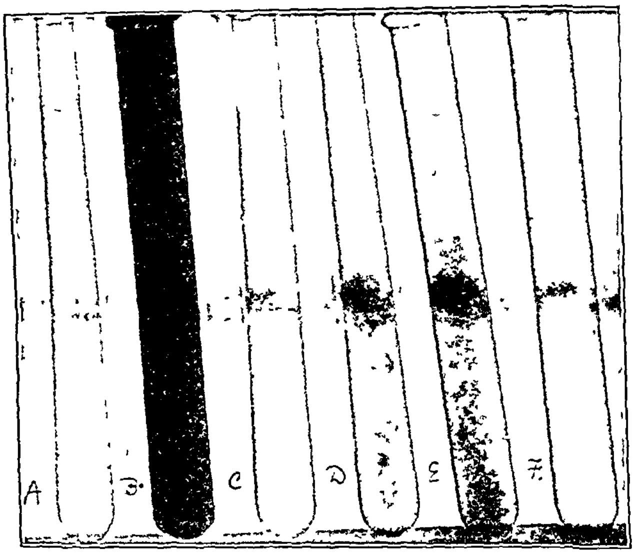

Fig. 3.—Absorption of Roentgen radiation by fluorescent fluids Tube A. Sol. benzoate of sodium. Tube B. Empty test tube which had held a solution of esculin; it obstructs the x-ray as absolutely as would a thick sheet of lead. Tube C. Fluorescin in distilled water. Tube D. Distilled water. Tube E. Sol. esculin in distilled water. Tube F. Ordinary empty test tube.

Examination.—Brawny edema of right arm; a lump nearly an inch in diameter of stony hardness within the axilla; induration in the scar tissue; extensive induration at the pectoral fold; infection of the skin lymphatics and a few skin nodules; enlarged glands above the clavicle and the personal appearance of carcinosis. She had lost flesh and was sallow, pale and anemic.

Treatment.—The patient was put on quinin and x-ray combined. By March 1 the swelling of the arm subsided. Owing to the difficulty of getting the x-ray into the axilla, radium bromid, 20 milligrams of 1,000,000 radioactivity in two aluminum tubes, was employed, placed directly on the hard axillary tumor, one hour daily, for a month. A radium "tan" was established and the skin peeled off several times.

Result.—May 26: No sign of disease remains. The cachexia has disappeared. Patient has regained her normal weight and is discharged to await events.

This is the first case in which the cervical glands were involved in which I have seen recovery.

Case 2.—Mrs. L. E. W., July 12, 1904.

History.—About five years ago the right breast was removed by the "plaster" process, on account of a tumor about the size of an orange. Five recurrences have ensued, each one in turn treated by the same method.

Examination.—An open ulcer about three inches long and three-quarters of an inch wide is situated in the center of extensive and widely infiltrated edges of surrounding tissue. A small, hard tumor was found in the axilla; also enlarged glands.

Treatment.—Fluorescin and x-ray combined; usual technic and radium, high intensity as in Case 1.

July 27: Ulcer already almost healed.

September 8: The indurations surrounding the cicatricial tissue, the enlarged glands, and the small, hard tumor in the axilla are fast disappearing. The ulcer is long since completely healed.

Result.—October 15: Patient returns home to-day. Careful examination reveals no infiltration and absolutely no sign of her former disease can be found.

Dr. A. Beclere[21] of Paris reports a case of cure of osteosarcoma of the superior maxilla, recurrent after having been twice removed surgically during a period of three years. "Synchronously with the x-ray treatments, and half an hour before their application, were administered 50 cgm. of the bichlorhydrate of quinin, as recommended by Dr. Morton of New York." Beclere considers that the details of this case may fairly be considered as indicating that the quinin, through its property of fluorescing when subjected to the influence of the x-ray, may have been a factor in producing the cure, but is not ready to commit himself positively on this point without having observed more cases. The reviewer continues: "The case is certainly very important, as the cure of a malignant process involving bony tissue by radiotherapy alone is at present almost, if not quite, an unparalleled event."

I am glad also to note that Dr. R. C. Kemp of New York, following my suggestion of the use of fluorescent solutions in diagnosis and treatment, has demonstrated its value as a means of determining the position and size of the stomach.

Dr. Solomon Solis-Cohen of Philadelphia has brilliantly verified the value of the method, employing a special stomach lamp of his own construction. I have found that the illumination is increased by the use of radioactive water and also that no technic as to fluids and bicarbonate of soda is of special value. A simple solution of fluorescin in plain water (1/8 of a grain of fluorescin to a pint) is all-sufficient to produce a vivid illumination when the stomach lamp is introduced. Doubtless many other applications similar to transillumination of the stomach will follow the method of the internal use of fluorescing solutions I have outlined.

Among cases in which I have found the method useful are carcinoma and sarcoma, lupus, Hodgkin's disease, tuberculosis and phthisis, eczema, psoriasis, and also in many nervous affections and insanity.

SUMMARY AND CONCLUSION.

1. The excitation of fluorescence within tissue is a species of phototherapy and dependable on the same basis for curative effects. The term sensitization is not accurate, for it is not known what the term means. There is no proof that fluorescent substances make the cells or other micro-organisms vulnerable to the exciting radiation.

2. What the fluorescent light lacks in *intensity* is compensated for by propinquity to tissue.

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[21] La Radium, July, 1904, quoted from Arch. of Elect. and Rad., September, 1904, p. 355.

3. The methods of Tappeiner, 1900, followed by Dreyer, 1903, consists primarily of superficial applications, or of parenchymatous injections submitted to the action of sunlight or to the action of the electric arc light.
4. The method here outlined consists of a medicinal saturation of the entire blood system with a fluorescent solution and submission of parts or of the whole of the patient to the Roentgen and Becquerel radiations and to electric discharges.
5. The method naturally includes filling cavities with fluorescent solutions, as well as using these solutions medicinally.
6. This method is not of the same category as sensibilitization by Dreyer's method, for the process and the results are different.
7. The curative effects obtained by this method are probably due to the fluorescent light.
8. This method permits of an improvement in skiagraphic effects and of fluoroscopic examinations.
9. Following the suggestions of the use of fluorescent solutions in diagnosis and treatment, the method has proved of value in determining the position and size of the stomach and other cavities of the body.
10. The thoracic cavity presents on the fluoroscope a degree of illumination greater than that produced by the x-radiation alone.
11. The method is useful in tuberculosis of the lungs, and in other cases of tubercular deposit, as well as in cancer.

THE DIAGNOSIS AND TREATMENT OF PERFORATION IN TYPHOID FEVER.

WITH A REPORT OF 19 CASES, OF WHICH 16 WERE OPERATED ON, WITH FIVE RECOVERIES.*

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The diagnosis and treatment of acute appendicitis are now so clearly defined and so generally recognized that it hardly seems credible that about twenty-five years ago bitter controversies were being waged in New York City as to the propriety of the use of the aspirating needle in the diagnosis of this condition, and an occasional recovery after the opening of an appendicular abscess attracted great attention.

It was at about this time, in 1884, that Leyden first made the suggestion that perforation occurring during the course of typhoid fever should be treated surgically. Contrast the fact that thousands of cases of appendicitis are now successfully operated on annually and that a paltry 362 cases constitute the whole literature of surgically treated typhoid perforation! And this for a condition which, according to the well-known statistics of Taylor, costs from 20,000 to 25,000 lives yearly in the United States alone.

The surprise, which at first glance seems inevitable, yields on a more careful consideration of the situation. While there are many things in which the two conditions have a close resemblance, there are other important points of difference. The first is that the majority of practitioners see relatively few cases of typhoid fever, and the clinical picture is one which is, unfortunately, only well known in all its various forms to those who have had the opportunity of hospital practice. Appendicitis is a disease of every-day occurrence, and the practitioner whose field of work is even limited has a more or less extensive opportunity for knowing the disease. Then, too, appendicitis strikes in health or after a previous attack, and the differential diagnosis is between unassociated conditions. Perforation, on the other hand, occurs during the course of a disease, the progress of which presents an infinite number of variations, which irregularities may be due to a great variety of causes. The typhoid stupor is not conducive to affording much aid from the patient, and hence we must depend on the intelligent observation of nurses rather than on the subjective complaint of the patient; so that, while the diagnosis of perforation may in some cases be exceedingly easy, in other cases it may be very difficult, and in still others absolutely impossible.

Advances have been made, it is true; yet, when compared with what has been accomplished in appendicitis, much remains to be done to popularize the diagnostic features of perforation, in spite of the fact that not a few excellent papers have been published which present the clinical aspect of this condition in the clearest possible way and leave nothing to be desired. Yet, look at the majority of the text-books now in the hands of students and practitioners and judge whether anyone, from reading even the latest editions of some of them, could recognize the occurrence of perforation early enough to render surgical interference possible. This is all the more unpardonable, since this subject has been so actively and ably studied during the past few years. The lore which lies buried in society reports, hospital bulletins and medical journals is not the working stuff which reaches the general practitioner and guides him in the darkness and despair which envelope these gloomy hours.

This, then, is my excuse for presenting this topic at this meeting, and possibly a review of the recent experiences at Mt. Sinai Hospital may be of some value in showing some of the varied clinical aspects of perforation.

This series of 19 cases of perforation out of a total of 216 cases (8.8 per cent.) of typhoid fever occurring at one hospital may possibly now subserve a better purpose than a collection of cases in different parts of the country, observed by different men under different conditions. Indeed, there is no excuse for this since the statistical side has been so ably treated by Keen, the Johns Hopkins School, Hare, Hays, Elsberg, Harte and Ashhurst, and other writers.

I have restricted myself to the cases which have occurred during the past two years, since those before that time have not been reported in sufficient detail to make them of special value for this purpose.

I am indebted to my colleagues, Drs. Meyer, Rudisch, Berg, Davison and Koplik for their courtesy in allowing me to report the cases which occurred in their services.

It will at once strike you that this is a very large number of cases to report for so short a period. It must remain an open question whether there may not be some seasonable variations which are peculiar to typhoid fever—that is, whether the typhoid bacilli which are responsible for the present epidemic have more ulcerating qualities, if one may be allowed to use this expression; or whether the large number may not be due to peculiarities of treatment; or, again, whether the question may not be explained by the better training and constant watch for the possibility of the occurrence of perforation.

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*Read in the Section on Practice of Medicine at the Fifty-fifth Annual Session of the American Medical Association, June, 1904.

As regards the first point, it has been frequently noted that there have been variations in the frequency of perforation. Curschman and Osler also refer to the great variations in the frequency of perforation in different epidemics, both from the clinical and from the autopsy records, the variations being from 4 per cent. to 33 per cent. There is also a difference in the statistics as to mortality from perforation, the German being much lower, Curschman giving 9 per cent. to 10 per cent. as the average mortality rate, while Osler's figures give 30 per cent. of all deaths as being due to perforation.

As regards the influence of treatment in this series, this can be dismissed in the present instance, since the cases occurred in various services and were not subject to any particular plan of treatment.

The third point probably affords the correct solution, namely, our better training and the ability to correctly interpret symptoms which formerly would have escaped notice. I have gone over many hospital reports and series of cases which have been published, and without exception I have noted that, whereas the first few cases occurred scattered at long intervals, the latter part of the series consisted of cases which occurred within a comparatively short time, thus showing that, as each observer's knowledge of the symptoms had improved, so had his diagnostic skill.

That a diagnosis is possible in the majority of cases is shown by the fact that of the 16 cases of this series which were operated on, the diagnosis was verified at the time of operation, and the 3 cases which were not operated on leave no room for doubt, either in the case which recovered or in the two which died.

To attempt any classification of these cases from a diagnostic standpoint is at present both impossible and futile. Thus, it is idle to divide them into the appendicular, the intestinal, and so forth, and it is useless to conjecture what pathologic changes might be present, since there is, unfortunately, no relation between the latter and the patient's symptoms. It is this lack of relation which often makes the diagnostic problem so difficult, and the confusion which has resulted from confounding perforation with a resulting peritonitis must be cleared up if early diagnoses are to be made. No more striking proof of the great extent to which this confusion still prevails can be offered than that which is afforded by the most recent and certainly the most elaborate and best work on typhoid fever in the German and English languages, i. e., Curschman's treatise and its American edition by Osler. In neither is there any index reference for perforation, and it is only referred to under perforative peritonitis.

A much more practical classification is that which is based on the mode of onset, whether abrupt or gradual. This is a useful grouping; it aids greatly in making a prognosis as well as a diagnosis, since a careful examination which I have made of a large number of published cases has demonstrated the fact that cases with an abrupt onset are much more favorable than the other group, because not only is early operative interference possible, but also, as a rule, the general course is more favorable.

In the present series the onset was gradual in 4, all of whom died, 2 having been operated on. In the other 15 cases the onset was abrupt, with 6 recoveries, 5 of which were operative cases. The mortality in the cases of gradual onset was 100 per cent., while in those of abrupt onset it was but 60 per cent.

It is not my purpose to bore you with a wearisome recital of the details of the 19 cases of perforation, since those who are interested will find these data appended in the chart and the report of the cases. Instead, I will try to give, as briefly as possible, the important features which may be serviceable from a diagnostic standpoint.

As usual, males predominated, there being 15 males to 4 females. The ages ranged between 6½ years and 42; 3 were under 10 years, 5 between 10 and 20, 6 between 20 and 30, 3 between 30 and 40, and 2 were 42 years old.

Plunges were used in 5 cases; not used in 14.

Bowels were constipated in 7; diarrhea in 4; variable in 8.

The day of perforation varied from the ninth to the fifty-eighth day of the disease.

	Cases.		Cases.
First week	0	Sixth week	1
Second week	5	Seventh week	1
Third week	5	Eighth week	0
Fourth week	3	Ninth week	1
Fifth week	8		

The onset was gradual in 4, and sudden in 15 cases.

FIRST SYMPTOM:

	Cases.
Abdominal pain	10
Pain and chill	2
Pain and vomiting	2
Vomiting	1
Chill	2
Changes in condition and rise in pulse and respiration	1
Changes in condition and abdominal tenderness	1

Of all the symptoms, pain will always remain the most important. It was present in 17 of the 19 cases of the series, being absent only in the 2 delirious and comatose cases, and in 14 it was the first symptom or onset. As this symptom deserves special attention it will be considered in detail later on.

Of the conditions of the abdomen, tenderness is a very varying symptom as regards extent, locality and severity. A far better guide is abdominal rigidity, which was present in 16 cases, was variable in 2 and absent in 1.

Distension is also an uncertain guide, as it was marked in only 6, was slight in 8 and absent in 3; in some of the latter the abdomen was even retracted.

Movable dullness in the flanks forms quite an important symptom, and was present in 8 cases, absent in 8, and not stated in 3.

As to the obliteration of liver dullness, much more would be gained from this symptom if physicians would make it a rule to note the variations in the size of the liver dullness throughout the disease. The time which is now wasted in examining the spleen during the course of the disease would be far better spent if devoted to the percussion of the liver and abdomen. The obliteration of the liver dullness is best noted in the axillary line, since this area is less subject to disturbing factors from undue distension of the colon and small intestine. The time of the occurrence of the obliteration of liver dullness is variable, and may even be absent in cases of perforation where free gas is localized in the peritoneal cavity by pre-formed adhesions. It was present in 11 cases, and was either absent or of doubtful value in 8 cases.

Posture: All children had flexed thighs.

Temperature: Fell, 3; rose, 9; unchanged, 4; could not be ascertained, 3.

Pulse: Fell, 0; rose, 12; unchanged, 4; could not be ascertained, 3.

Respirations: Fell, 0; rose, 10; unchanged, 6; could not be ascertained, 3.

Number of leucocytes: Rose, 7; fell, 3; no marked change, 6; could not be learned, 3.

Collapse was present only once; sweating, twice.

No observations on changes in blood pressure, to which some observers (Elsner and Crile[1]) have called attention, were made. For obvious reasons this will never be an important guiding symptom in this condition.

Results: Died, 13 (68.4 per cent.); recovered, 6 (31.6 per cent.).

Operated on, 16; died, 11 (68.75 per cent.); recovered, 5 (31.25 per cent.).

Not operated on, 3; died, 2 (66 per cent.); recovered, 1 (33+ per cent.).

In 1902, out of 107 cases of typhoid fever treated at the hospital, there were 9 cases of perforation, with 1 operative recovery and 1 non-operative recovery, giving an operative recovery *of 11+ per cent. In 1903, out of* 109 cases of typhoid fever, there were 10 cases of perforation, 8 of which were operated on and 2 were not operated on; both of the latter died. Of the 8 operated on, there were 4 recoveries (50 per cent.) If objection be made to including the 2 cases of recovery where fecal abscesses were opened, there would still remain 2 operative recoveries out of 6 cases of perforation operated on, namely, 33+ per cent. of recoveries.

Case No.	Sex and Age.	Bowels.	Day.	Onset.	First Symptoms.	Abdominal Pain.	Chill.	Vomiting.	Collapse.	Sweating.
1	M. 18.	Constipation and diarrhea.	16	Sudden	Vomiting	Yes	No	Yes	No	No
2	F. 6½	Constipation	32	Sudden	Chill	Yes	Yes	Late	Gen. condition bad.	No
3	M. 23.	Constipation	13	Sudden	Chill	Yes	Yes	No	No	No
4	M. 35.	Diarrhea	9	Sudden	Severe pains in right iliac fossa and cramps.	Very severe; at first in right iliac fossa, then general and both steady and paroxysmal.	None	Late	No	Yes
5	F. 42.	Constipation	14	Sudden	Severe pain in abdomen and chilly; also tenderness in vagina.	Severe; at first severe pain in abdomen; later low down in right iliac fossa. Also considerable tenderness in right vaginal fornix.	Yes	Late	No	No
6	F. 42.	Constipation and diarrhea.	38	Gradual; concealed symptoms.	General abdominal pain.	Yes; tenderness in right iliac fossa; moderate abdominal pain.	No	No	No	No
7	M. 22.	Constipation and diarrhea.	18	Sudden	Abdominal pain	Tenderness in right iliac fossa; cramps.	Yes	Late	No	No
8	M. 12.	Constipation and diarrhea.	43	Sudden	Severe pain in umbilicus.	Severe; in umbilicus	No	Yes	No	No
9	M. 22.	Constipation	15	Sudden	Severe abdominal pain	Yes; cramplike	Yes	No	No	No
10	M. 38.	Constipation	18	Sudden	Severe pain in abdomen.	General	No	No	No	No
11	M. 13.	Constipation and diarrhea.	10	Gradual	Pulse and respiration rose	Yes; caused by flexion of thigh.	No	Only late.	No	No
12	M. 7.	Constipation and diarrhea.	14	Sudden	Sudden crampy pain in abdomen and chill.	Yes; cramps	1 at onset; 1 14 hrs. later.	No	Yes	No
13	F. 9.	Constipation	27	Sudden	Sudden pain and vomiting.	Yes; especially on change of posture, lies with thighs flexed.	No	Yes	Yes	No
14	M. 19.	Diarrhea	31	Sudden	Sudden sharp pain and chilly.	Sharp cramps; cries out with pain.	Slight	No	No	No
15	M. 30.	Diarrhea	25	Gradual; hemorrhage preceding day. Onset marked by abdomen becoming somewhat distended: lessening of liver dullness then loss of pint of blood.	Abdomen became distended. Hemorrhage.	No (comatose)	No	No	No	Late
16	M. 16.	Diarrhea	23	Gradual change in patient; slight abdominal distension. Tenderness in right iliac fossa. No pain.	Tenderness in right iliac fossa.	No (delirious)	No	No	No	No
17	M. 21.	Variable	36	Sudden	General abdominal pain and cramps.	Yes	No	No	No	No
18	M. 24.	Constipation	35	Sudden	Severe abdominal pain	Yes	No	No	No	No
19	M. 25.	Variable	15	Sudden	Stabbing abdominal pains both sides.	Yes	Yes	Yes	No	No

Time of operation (reservation being always made as regards the exactness of such estimation):

	Cases.		Cases.
5 hours	1	21 hours	1
6 hours	3	43 hours	1
8 hours	1	48 hours	1
11 hours	2	72 hours	1
12 hours	2	Unknown	6[2]

I wish to draw especial attention to the diagnostic significance of pain. As already stated, it occurred in 17 of the cases of this series, and in 14 was the very first symptom of onset. It varies in degree and in location. It also varies in its character, but is usually more or less paroxysmal. Its severity may be so marked that the more or less comatose patient may cry out with pain; on the other hand, it may be very mild, indeed. It may remain more or less constant or it may gradually disappear; *it may even be concealed,* as occured in Case No. 6, to avoid operation. It may be referred to any part of the abdomen, and even to other parts, like the penis, the umbilicus, or to the left iliac fossa. In the latter, which occurred in Case No. 6, an omental abscess was found near the tender area.

It is the constancy of the early occurrence of pain in cases of perforation which renders the proper interpretation a matter of very great importance. The correct appreciation of the exact significance of attacks of pain during the course of typhoid fever is by no means an easy task, and we are greatly indebted to McCrae[3] for his instructive analysis of the relation of pain in 500 cases of typhoid fever. Of this series the most important were the 161 cases (32 per cent.) in which there was more or less marked pain during the course of the disease. In these 161 cases of pain the pain was referred to perforation in 13 cases, to hemorrhage in 13, to some known cause in 65, but in 70 cases no explanation could be found.

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[1] The Journal A. M. A., 1903, vol. xl, p. 1292.

[2] Further details will be found in the chart of the symptoms of the cases.

This subject is so important that I may be pardoned if I name the various conditions to which the pain was referred in the 65 cases where the cause was discoverable. They were, first, hysteria, pleurisy, pneumonia, distended bladder, abortion, labor and menstruation; second, gastrointestinal conditions apart from complications, i. e., taking solid food, vomiting, constipation, fecal impaction and diarrhea; third, various abdominal conditions, i. e., appendicitis, peritonitis, cholecystitis, rupture of the gall bladder, liver abscess, painful spleen (rupture or infarction), phlebitis and thrombosis of iliac vessels.

Among the 70 cases in which no cause was discoverable were included several cases in which the pain was very severe *and accompanied by rigidity, tenderness,* leucocytosis and diminished liver dullness. Two of these cases were operated on; in one only the angry bases of inflamed Peyer's patches could be found; in the other nothing was discoverable. In others of these cases it was surmised that enlarged mesenteric glands might have caused the pain.

McCrae states that of the various conditions in which pain occurred, the association of perforation and hemorrhage was most puzzling. The two cases in my series corroborates this statement. The possibility of the two conditions occurring together should always be borne in mind, and McCrae very properly warns against the danger of opium in such cases, since the symptoms may be masked by it. Every case of hemorrhage with marked symptoms should be regarded as being possibly associated with perforation.

It is unfortunate that the time at my disposal does not permit a more careful discussion of these two conditions, for the further consideration of which and the other associated conditions I would refer to the paper above cited and also to a most careful analysis by McCrae and Mitchell on the "Surgical Features of Typhoid Fever."[4]

Temperature.	Pulse.	Respiration.	Abdomen.	Flank Dullness.	Obliterated Liver Dullness.	Leucocytes.	Operation.	No. of Hours.	Result.
No marked change	No marked change.	Rose	Rigid; slightly distended.	Yes	Yes	No great change; *3,500-5,000.*	Yes	12	Death.
No marked change	Rose	Rose	Rigid; slightly distended.	No	Yes	Rose 7,400-18,000	Yes	8	Recovery.
Rose 101-103 and then fell.	Rose	No change first day; then rose.	Rigid; much distended.	No	Yes (movable)	Rose 5,600-14,000	Yes	43	Death.
No change	Rose	Rose	Rigid; much distended.	Yes	Yes	Rose 8,600-13,400	Yes	11	Death.
Rose	Rose	Rose and fell	Lax but tender: not distended.	No	Not till late	No great change; 3,200-4,800.	Yes	21	Death.
99.8-102: rose	100-122; rose	No change	Rigid, especially in left iliac fossa; *not distended.*	No	Not till late	Fell 12,000; 5,700-11,000.	Yes	12	Death.
103-106; rose	96-136; rose	No change	Rigid; later relaxed; distended.	No	General tympany. Later changeable.	8,000-7,000; 7,500	Yes	9	Death.
Rose 100.2 to 102.2; then fell to 98.6; rose to 104.	100-128; rose	24-32; rose.	Rigid; distended	Slight	Yes	Rose 9,000 to 14,000. Three days later fell to 5,000.	No	....	Recovery.
Fell 102.8-101.8; then rose to 104.2.	96-138; rose	24-28; rose	Rigid; distended	No	Yes, and changeable.	Fell 8,500 to 4,500	Yes	11	Death.
No change	No change	Rose	Great rigidity; distended.	No	Yes, and changeable.	Fell 8,500 to 5,300	Yes	....	Death.
Fell 103-101.6 and oscillated.	116-140; rose	30-52; *rose*	*Rigid; slightly distended.*	*Left flank dull* and tender.	Yes	*Rose 5,200 to 11,200*	No	....	Death.
Admitted with perforation.	Admitted with perforation.	Admitted with perforation.	Rigid; distended	Movable	Yes	10,400	Yes	30	Recovery.
102-105: rose	108-174; rose	Stationary at 34	Very rigid; slightly distended.	Yes; right iliac fossa not movable.	No	Rose 6,000 to 10,600.	Yes	5	Death.
102.4-105; rose	90-120; rose	Abdominal; stationary at 32.	Rigid; slightly distended.	No	Yes (3 hours)	Rose 8,200 to 10,800.	Yes	6	Recovery.
Severe septic *type* with upward tendency.	Severe *septic* type with upward tendency.	Upward tendency (thoracic).	Variable rigidity; slightly distended at first; later marked.	No	Yes	Stationary; 4,900 to 5,800.	No	....	Death.
No change	100-170; rose	Irregular; rises and falls 30-45.	Rigid; late distention.	Yes	No	Rises and falls 11,600-9,800; 11,700	Yes	....	Death.
Admitted with perforation.	Admitted with perforation.	Admitted with perforation.	Moderate rigidity; no distention.	Yes	Yes	9,000	Yes	72	Recovery.
Fell 102.2-101.6	No change	Thoracic	Slight *rigidity, but* soft; at first concave.	No	Slight	6,000-6,600	Yes	6	Death.
(In hospital). Fell from 105.2 to 101.8.	Admitted with perforation.	26	Rigid; retracted, but became more distended.	Yes, but not movable.	Yes, mammillary, not axillary.	14,200	Yes	48	Recovery.

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[3] New York Med. Jour., May 4, 1901; see also Martin, de la Douleur Abdominale dans la Fievre Typhoide, These de Paris, 1901, which corroborates McCrae's statements.

[4] Johns Hopkins Hospital Reports, vol. x.

The solution of some of these problems of the real signifiance of pain will be found when we know more about the exact relation of non-perforative peritonitis in typhoid fever. A recent paper by Yates[5] contains a very full bibliography and presents a number of most instructive facts as to its varied relations. Non-perforative peritonitis is one-third as frequent as perforation, since it was found present in 73 out of 4,300 cases (1.7 per cent.) collected by Horton Smith and Hoelscher and Liebermeister.

The symptoms of peritonitis as given by Yates are exactly those of perforative peritonitis, and in the 20 cases which he has collected were so regarded, as will be detailed later on in the discussion of the treatment.

These cases of localized peritonitis without perforation, like the case of Murphy,[6] the 5 cases of Gairdner,[7] the 2 of Shattuck, Warren and Cobb,[8] and others, may be cited as showing how exceedingly important it is to always bear in mind the relation of non-perforative peritonitis in the differential diagnosis of pain.

In drawing practical conclusions from this analysis of the varied clinical features of perforation as it occurred in this series, it will at once be seen that there is no one symptom or group of symptoms which is pathognomonic. Its recognition demands intelligent watchfulness and judgment on the part of the physician, and especially the nurses.

Osler's[9] schema for the observation of symptoms in suspected perforation is a useful guide which should be both studied and used by the physician, and especially for the instruction of nurses.

To my mind the first important fact to note is that there is a more or less marked change in the condition of the patient; associated with this, there is usually some form of abdominal pain which is very variable. The condition of the abdomen as regards tenderness, rigidity, distension, respiratory excursions and the liver-dullness which have been routinely observed, now afford valuable aid. Movable dullness in the flanks gives distinct evidence of peritoneal exudate. In the meantime the anxious facies and sweating are significant guides. Changes in the rate and character of the pulse mean much more than do changes in the temperature and respiration. The leucocyte count is of so little value that the general practitioner may very well disregard it in private work Probably more will be gained from a simple hemoglobin test to exclude a concealed or misleading hemorrhage.

Finally, it is the combination of the symptoms, their progressive character and development which must enable one to make a presumptive diagnosis.[10] It is far safer to assume that the symptoms point to the occurrence of perforation and to prepare for possibilities and rapid action than to take the opposite standpoint and wait for the fully developed symptoms of peritonitis.

If these facts be borne in mind it becomes much easier to understand the statements made by all writers that the marked symptoms are not those of perforation, but of the complicating peritonitis. It also becomes easy of comprehension that most physicians expect too many and too pronounced symptoms for an early diagnosis of perforation, for the appearance of which they often sacrifice the golden time for successful operative interference, since the fact is so often overlooked and so seldom understood that the perforation itself causes little shock and may even afford temporary relief.

It is absurd to state definitely in many cases that the perforation occurred at this or that time, and that the operation was performed a certain number of hours after perforation. Such estimates are only approximate and are liable to great errors. We are really only entitled to say that the operation was performed at such an interval after the occurrence of certain symptoms. However, as no other guides are given, this is often the best that can be done, and in what follows I would have such statements as to the time of operation so understood.

The reason for this statement is that the occurrence of acute symptoms does not necessarily mean that this coincides with the time of perforation. Anyone who has seen a number of cases of perforation must have been struck by the difficulty of estimating the exact time of the occurrence of the accident. Corroboration of this will be found in the statement made by Shattuck, Warren and Cobb, that early warning pains, earlier by a definite number of hours than the severe symptoms, occurred in 14 out of the 21 cases of perforation reported by them.

Before considering the question of treatment, a few words may be said as to the possibility of the spontaneous cure of perforation. Most authorities deny this positively. The views of Fitz[11] and Curschman and Osler[12] leave little room for doubt as to the certainty of their convictions. The cases in which spontaneous cures have occurred are supposed to have been either appendicular perforations in the course of typhoid, or cases of peritonitis which have simulated perforation. My own belief, from what I have seen, is that spontaneous cure is possible and probably occurs more often than we think. if the perforation is a small one and is immediately shut off by adhesions or omentum. I may refer to Case No. 8 as one of spontaneous cure, and to Case No. 18, in which a small perforation was found at the autopsy well sealed by adhesion of omentum.

Cases have been reported by Bucquoy, Trousseau, Cruveilhier, Reunert, Bühl, Widal, Dieulafoy, Chantemesse and Remlinger[13] in which recovery has been due to protective adhesions, fibrinous deposits and by the agglutination of intestines, omentum or mesentery. Furthermore, Haegle-Pasavant, Villemin and Walther have reported recoveries with intestinal fistulæ. The cases of Bucquoy and Widal are especially interesting, since the patients having died from other conditions, the evidences of the healed perforations and adhesions were found at autopsy.

Granting the possibility of spontaneous cure, the best results ever claimed for nature's method have been 5 per cent., and even the recoveries with fecal abscesses can hardly be called ideal recoveries. Contrast this with the latest statistics published by Hare and Ashhurst of 362 cases which they collected from the *literature*, with a recovery of 26 per cent. Granting that these statistics represent in the main successful cases and may not include many unreported unsuccessful cases, yet the contrast is sufficiently striking as to leave no doubt as to the best plan for treatment.

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[5] American Medicine, May 2, 1903.

[6] Keen: Surgical Complications and Sequels of Typhoid Fever, Philadelphia, 1898, p. 238.

[7] Glasgow Medical Journal, vol. xlvi, p. 114.

[8] Boston Med. and Surg. Jour., June 28, 1900.

[9] Philadelphia Medical Journal, Jan. 19, 1901.

[10] See also McCrae and Mitchell's summing up of the various symptoms on pp. 410-411, Amer. Med., Sept. 13, 1902.

[11] Trans. of the Assn. of Amer. Physicians, vol. vi, 1891, p. 207.

[12] Typhoid and Typhus Fever, Nothnagel's Encyclopedia, American translation, p. 233.

[13] Bull. de la Soc. Imp. de Constantinople, Seance du 15 Mars, 1901.

This consists in making as early a diagnosis as possible, and this, or a strongly probable diagnosis having been made, an immediate operation is indicated.

It is a matter of great regret that in private practice the patients are under a great disadvantage in regard to what constitutes an early operation, for reasons which are obvious, unless the possibility of surgical complications receive that prompt consideration and action which is afforded to patients in the hospital. No time should be lost by the attending physician in making suitable *preparations for the surgeon* while he is stimulating the patient and awaiting the final decision as to the course of action. No harm will be done by making needless preparations; much will be gained by making timely preparation for prompt action.

The only exception to the rule of early operation is that moribund patients should not be operated on.

In making the prognosis it must not be forgotten that the patient must still run the gauntlet of the balance of his attack of typhoid fever, in passing through which, however, he will have been made none the worse by the operation. This also holds for those cases in which no perforation has been found, unless, of course, the underlying condition which produced the misleading symptoms should cause a fatal issue. The wonderful endurance and resistance of typhoid patients enable us to hold out a much more hopeful prognosis than would be deemed advisable under other conditions. The operation in skillful hands, with local or general anesthesia, is infinitely less dangerous than the possibilities of the complications of the disease. Furthermore, I have observed that in some of the patients who have survived the operation for perforation, the balance of the disease seems to have been cut short by the operation. McCrae and Mitchell have also observed this. Lenander, quoted by Cushing.[14] discourages delay, and even goes so far as to regard the narcosis and operation as a means for combating the shock due to perforation.[15]

The cases in which a perforation has not been found are often by no means needless interferences, since an impending perforation may be prevented or undue distension may be relieved by low ileostomy, as done by Cushing and Esher. Furthermore, Yates' statistics show that of 20 cases of peritonitis in typhoid fever which he collected, 11 were operated on with 4 recoveries; 9 were *not operated on, and all died.* Of the 11 cases operated on, one was a case which was operated on for appendicitis, but proved to be a walking case of typhoid fever with peritonitis. All of the others were cases of typhoid fever which were operated on for supposed perforation, but in which only peritonitis was found. Finally, Cushing has reported a case which was under his care in 1889, and was operated on for symptoms of supposed perforation. No intestinal lesion was found except a chronic adherent appendicitis. The removal of the appendix under cocain anesthesia gave immediate relief from the abdominal symptoms, and the patient recovered from his typhoid fever.

If, however, an early diagnosis has not been made, the indications for immediate operation are not so clear and the cases must be individualized as to the advantage of waiting or of operating, since Nature does cure some of these cases. But who can surely pick them out and what means have we at our disposal to know whether the opening has been closed by the adhesion of omentum or by a thick layer of fibrin?

Cases 17 and 19, in which successful operations were performed many hours after perforation, enormous fecal abscesses being found notwithstanding the fact that the patient's general condition was good, show that even a late operation has its indications.

These 2 cases (17 and 19) deserve a few words. No one looking at Case 17 would have suspected that he had nearly two quarts of fecal fluid in his peritoneal cavity—nothing in his condition on his admission to the hospital, even after his transportation, would have warranted this assumption, except a careful consideration of the history and the proper interpretation of the physical signs. To have relied on the clinical text-book description would have been absolutely misleading.

Even more striking is the last case (No. 19). This was a walking case where perforation occurred on the fifteenth day. He was admitted to the hospital twenty-four hours later. A leucocytosis of 14,000 was found; the local rigidity and tenderness in the abdomen lessened; his temperature dropped from 105.2 F. to 101.8 F.; pulse and respiration improved decidedly, and his whole appearance was better. On the following day the only disturbing features were that there was a little more distension, the liver dullness had decreased, and he had vomited twice during the night. The operation was then performed, and an enormous fecal abscess was found. The patient has recovered in spite of a complicating pneumonia. An additional feature of interest is the fact that the Widal reaction was repeatedly negative till the forty-second day; the positive diagnosis of typhoid fever had, however, been made on the twenty-sixth day by the finding of typhoid bacilli in the blood culture.

Wilson of Philadelphia, the earliest advocate of operative interference in this country, wrote as follows in 1886:[16]

> Granted that the chance of a successful issue is heavily against you; that the patient is in the midst, or at the end, of a long sickness; that the tissues are in the worst state to stand the injuries of the surgeon's knife; that the lesions of the gut may be very extensive; that the vital forces are at the lowest ebb; no one has yet for these reasons refused to perform tracheotomy in the laryngeal complications of typhoid fever, which requires it to save life. The operative treatment of purulent peritonitis has been performed successfully many times by gynecologists in conditions scarcely less promising. In point of fact, the objections which may be urged against laparotomy in intestinal perforation in enteric fever are no more forcible than those which would have been made use of at first against the same operation in gunshot wounds of the abdomen. . . . The courage to perform it will come of the knowledge that the only alternative is the patient's death.

Mikulicz[17] stated in 1884:

> If suspicious of a perforation, one should not wait for an exact diagnosis and for peritonitis to reach a pronounced degree; but, on the contrary, one should immediately proceed to an exploratory operation which in many cases is free from danger.

It is hard to believe that these views were written in 1886 and 1884, respectively; it is still more difficult to modify or change in any respect these terse and telling sentences which so truthfully represent the experience and opinions of all physicians who have had practical experience with this most trying complication of typhoid fever.

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[14] Studies in Typhoid Fever, Johns Hopkins Hospital Reports, Series 3, pp. 229-230.

[15] In the cases reported general anesthesia was always used in preference to local anesthesia, unless there was some special contraindication.

[16] Quoted from Finney, Johns Hopkins Hospital Reports, vol. viii, p. 56.

[17] Curschman and Osler, op. cit., p. 235.

Cases 1 to 7 and 9 have already been published in Mount Sinai Hospital Reports, 1903, vol. iii, pp. 104, 75, 383, 207, 208, 384, and hence the histories are omitted. The details will be found in the chart.

Case 8.—*Typhoid fever; moderately severe course of long duration; symptoms of perforation on forty-third day; spontaneous recovery.*

Patient.—Hyman B., aged 12, was admitted Oct. 2, 1902, to the service of Dr. Koplik, with a history of typhoid of ten days' duration. Among the early symptoms was abdominal pain, which was present at the time of admission. He had also vomited at different times.

Examination.—White blood count on the day after admission, 10,200. Widal positive in 1 to 50. The liver enlarged three finger breadths below the costal border.

October 8. Temperature approaching normal. General abdominal tympany, but lax. Leucocytes, 5,000.

October 11. Slight abdominal pain on pressure in the right iliac fossa; soon passed off. Lower border of the liver at the free border of the ribs.

October 27 (thirty-fifth day). A sudden short rise of temperature to 104 F.; pulse, 110 to 120; leucocytes, 7,000.

The following week the temperature gradually fell, reaching 99 F. on November 2. General condition good. Pulse 90 to 104; respiration, 24.

November 4 (forty-third day). Morning temperature, 99.1 F. At 4 p. m. he complained of sudden severe abdominal pain at the umbilicus; abdomen rigid and general tenderness, especially in the right iliac fossa. Temperature, 100.2 F.; pulse, 104; respiration, 24; leucocytes, 14,000. At 4:30 p. m. vomited. At 6 p. m. temperature, 102; pulse, 116 to 128. Expression anxious; condition of the abdomen unchanged. Rectal examination showed tenderness in Douglas' pouch. At 8 p. m. the temperature had fallen to 99.8; pulse and respiration remain 104 and 24. At 9 p. m. temperature rose to 104; pulse, 124; respiration, 32. Condition of the abdomen the same. Liver dullness unchanged.

November 5. Midnight temperature, 103.8; respiration, 32; pulse, 128. Abdominal pain was the same; no vomiting. Liver dullness reached from the sixth rib to just above the free border. Abdomen was slightly distended, rigid and with a tender area in the right iliac fossa. Temperature during the day ranged between 103 and 104.4; pulse kept about 120; respiration varied from 26 to 30, superficial. Leucocyte count at 10 a. m. 12,200. At 3 p. m. he still had abdominal pain. Liver dullness was half gone in the middle line. Abdomen rigid; slight dullness in both flanks.

November 6.—Temperature, which had reached 104.4 at 6 a. m., gradually fell during the day, being 103 at 3 p. m., 101 at 9 p. m., and 99.8 at midnight. The pulse rose to 148 at 6 p. m. and then rapidly fell to 100 at midnight. Respiration, 26 at 6 a. m., 36 at noon, 38 at 6 p. m., and fell to 28 at midnight. The abdomen became more distended and was very tender. Liver dullness remained the same; no friction sounds could be heard. Throughout the day the patient's condition remained unchanged, the face being very anxious and the general impression being that of a child who was desperately ill.

November 7. Both pulse and respiration gradually fell during the course of the day, temperature dropping from 101 at 3 a. m. to 98.6 at 6 p. m. Pulse from 110 at 3 a. m. to 72 at 6 p. m. Respiration ranged from 26 to 24. Blood count at noon was 5,800. General condition better; quality of the pulse decidedly improved. Abdomen, especialy the right iliac fossa, being less tender. Dullness in both flanks still persisted; liver dullness remained unchanged. He passed a stool voluntarily.

November 8. Temperature normal. Abdomen less distended; very little tenderness of the right iliac fossa; liver percusses to the free border; leucocytes, 7,000.

Subsequent course of the disease was uneventful; discharged on December 10.

The case attracted a great deal of attention, owing to the fact that the parents refused to have an operation performed, and I am indebted to Dr. Koplik for the privilege of observing the course of this spontaneous cure of a perforation.

As to the occurrence of a perforation on the afternoon of the forty-third day there can be absolutely no doubt, since the presence of pain, rise in temperature, pulse and respiration range, the increase in the number of leucocytes, the occurrence of abdominal distension, the characteristic pain in the right iliac fossa, the tenderness and doughiness of the pouch in the rectum, the partial obliteration of the liver dullness, the dullness in both flanks and the change in the patient's condition, constitute a group of clinical phenomena for which no other explanation than that of perforation with peritoneal effusion can be found. This diagnosis is strengthened by the subsequent disappearance of all these signs.

Case 10.—*Typhoid fever; severe course; perforation on eighteenth day; operation; death.*

Patient.—Samuel H., aged 38, Russian, was admitted on Jan. 28, 1903, on the fifteenth day of his disease. Markedly alcoholic history.

History.—He had been in bed a few days at a time until three days ago, when he remained in bed constantly. There was obstinate constipation.

Examination.—On admission his condition was apathetic. Abdomen tympanitic, somewhat distended, moderate rigidity, no tenderness, no roseola. The liver dullness extended to the free border. Bronchitis. General condition poor. Temperature, 104.4 F.; pulse, 118; respiration, 28. At 3 p. m. temperature rose to 106, but dropped to 104 F. at midnight. Leucocyte count, 8,400.

January 29. Temperature ranged from 104 to 105.4 F.; pulse between 90 and 104; respiration between 24 and 34.

January 30. Patient decidedly worse, temperature suddenly rising at noon to 107; pulse, 120; respiration, 38. Widal remained negative. At 6 p. m. temperature, 106; at midnight, 105.4; pulse, 120; respiration, 40.

January 31. At 4:30 a. m. he complained of severe generalized abdominal pain with marked rigidity and tenderness, both being more marked on the right side and especialy in the iliac fossa. Complete obliteration of liver dullness anteriorly; dullness of upper border of liver in axilla became tympanitic when the patient was turned on his left side. Respiration thoracic and had fallen to 34, but soon rose to 48. Temperature fell to 104, pulse to 112. At 9 a. m. temperature, 105; pulse, 148 and very weak; respiration, 48. Leucocyte count, 5,800. The abdominal signs unchanged.

Operation.—Consent for an operation having been obtained, patient was transferred to Dr. Liliendal's service for operation. Free fecal fluid in peritoneal cavity; perforation found in lower ileum and sutured.

Patient died eight hours after the operation. No autopsy.

Case 11.—*Typhoid fever; moderate course; perforation on tenth day; no operation; death.*

Patient.—Joseph C., aged 13, American, was admitted to the children's service July 17, 1903, with a history of typhoid fever of one week's duration. Bowels normal; has had slight pain in the abdomen since onset.

Examination.—The attack was of moderate severity. Positive Widal, 1 to 50. White blood cells, 5,200; hemoglobin, 75 per cent. Abdomen retracted and tympanitic, except in the rigid area over the right upper rectus, where there was some dullness; rigidity of right upper rectus, tenderness in the right iliac fossa. The liver extended from the fifth space to the free border in the mammillary line, and in the anterior axillary line from the sixth space to one finger's breadth below the free border. Spleen palpable; a few roseola. Temperature, 103.8 F.; pulse, 120; respiration, 30.

Treatment.—Plunge on the first day was badly borne and only one given, sponges being used thereafter.

July 19. At 9 a. m. temperature dropped to 100.4, pulse remaining stationary at 110; respiration, 24. At noon, white blood cells, 9,400. In the evening the temperature rose to 103.4, respiration to 52, pulse to 144, fair quality. No vomiting. Liver dullness not obliterated; abdomen tympanitic except dullness in the left iliac fossa. Flexion of the left thigh caused pain. The breathing is thoracic and superficial.

July 20. General condition unchanged and physical signs as last noted. The temperature at noon had dropped to 100.8, pulse to 128; respiration remained stationary at 48. White blood count, 10,600. At 9 p. m. the temperature rose to 102.4, pulse to 140, respiration to 56.

July 21. General condition the same; abdomen still tense, slightly distended and tender, especially in the left iliac fossa. General tympany, except dullness in the left iliac fossa. Liver dullness in the mammillary line obliterated up to two fingers' breadths above the free border of the liver. In the axillary line dullness from the eighth space to the free border. Lies with thighs flexed. Thoracic breathing; vomits occasionally; bowels respond slightly to enemata; rectal feeding begun. The temperature dropped to 100.6 at 9 a. m., but rose to 102.8 in the afternoon. Pulse kept between 130 and 140. Respiration, which had fallen to 36 in the morning, in the afternoon and evening kept at 52. White blood count at noon, 11,200.

July 22. General condition worse. Extreme thirst; tongue dry and coated; vomits everything. Lies with flexed thighs. Abdomen is tense, slightly distended, especially in the lower half; dullness in the left iliac fossa. Tympany over the liver is one finger's breadth higher than noted yesterday.

July 23. Grew progressively worse. The vomiting was incessant; the abdomen was less rigid but still tender. The liver dullness remained as last noted. The temperature, which had remained at about 100.5 on July 22, fell to 98 at 9 a. m. on July 23, and rapidly rose to 104.8 at midnight; pulse oscillated between 150 and 160; respiration between 36 and 48. Died July 24, 2 a. m. No autopsy.

Comments.—The clinical picture of this case was that of perforation, which probably occurred on July 19. Operation was proposed on that day, but consent could never be obtained.

Case 12.—*Typhoid fever; mild course; perforation on fifteenth day. Admitted with perforation; operation thirty hours (?) after perforation. Recovery.*

Patient.—Harry R., aged 7, American, admitted to the surgical service on Aug. 6, 1903, with a history of typhoid fever of two weeks' duration.

History.—He had really been very ill only for twenty-eight hours before admission, the history being that of an acute onset of severe burning pain in the abdomen, then general cramplike pains, which were most marked on the right side of the abdomen. Vomited once after eating; bowels moved slightly after an enema. Two chills, one at onset and one four hours after the enema. Eighteen hours before admission the child's temperature was 104. These were the only details that could be obtained from the physician who had attended the child before admission to the hospital.

Examination.—On admission the child's general condition was poor. He was somnolent, but when aroused the expression was anxious. Heart and lungs negative. Abdomen was generally distended, rigid, tense and tender, the tenderness being most marked in the right iliac fossa; movable dullness in the flanks; no mass palpable. The liver and splenic dullness was obscured by tympany and rigidity. Rectal examination negative. Temperature on admission was 100.4; pulse, 120; respiration, 22.

Operation.—Patient was admitted at noon and operated on at 2 p. m. by Dr. Elsberg; cloudy fluid was found in the peritoneal cavity. A perforation was found twelve inches from the cecum; the neighboring intestines were covered with fibrin for from three to four inches above the perforation. The perforation was sutured. The appendix was removed but found normal. The peritoneal cavity was irrigated with normal saline solution and the wound sutured.

Shortly after the operation temperature rose to 103.4, pulse to 146, respiration to 44. The subsequent history was that of a rapid convalescence, temperature reaching normal on August 8, the third day after the operation and the seventeenth day of the disease. A positive Widal was obtained on the day after admission, on which day the leucocytes were 10,000.

He was discharged cured Oct. 3, 1903.

Case 13.—*Typhoid fever; moderate course; perforation on twenty-seventh day; operation five hours later; death from perforation of another ulcer.*

Patient.—Becky B., aged 9 years, American, was admitted on Sept. 11, 1903, to the children's service with a history of typhoid fever of eight days' duration. Constipated. The disease ran a course of moderate severity. Leucocyte count between 6,000 and 7,000; hemoglobin between 75 per cent. and 65 per cent. Temperature began to fall on September 28, the twenty-fifth day of the disease.

September 30. Child takes nourishment poorly; slight distension; vomiting. Liver dullness extends from the fifth space to the free border. 6:20 p. m., complained of pain when position was changed; nauseated one hour ago; legs flexed on abdomen; abdomen more rigid and tender, especially on the right side, being most marked in the iliac fossa, where there is dullness, the rest of the abdomen being tympanitic. Dullness in the right flank which is not movable. Liver percusses to the costal border. The temperature, which had been 104 at 1 a. m., and had dropped to 100.8 at 11 a. m., was 102.2 at 3 p. m., 102.6 at 6 p. m., and 105 at midnight. Pulse at 1 a. m., 134; at 3 p. m. and 6 p. m., 108. Leucocytes, 10,600. At 7:30 p. m. the patient went into collapse.

Operation.—At 10:45 the patient, having responded to stimulation, was sent to the operating room, where laparotomy was performed by Dr. Elsberg and a large quantity of yellowish fluid found. Four inches above the ileocecal junction a perforation was found and sutured. There were three other suspicious ulcers within the foot of gut above the ileocecal valve. Irrigation with normal saline solution. Dr. Libman reported bacterium coli in the peritoneal fluid.

Result.—Death occurred twenty-four hours later with marked abdominal distension and rise of temperature, which had fallen after the operation. Twelve hours after the operation the patient seemed to have rallied, but this change was only temporary.

Autopsy.—An ulcer was found through which feces and gas escaped; general peritonitis; fibrinous exudate on coils of bowels; moderate amount of purulent peritoneal fluid; sutured perforation intact; other organs showed the usual lesions of typhoid fever.

Case 14.—*Typhoid fever; walking case; perforation on thirty-first day; operation six hours later; recovery; normal temperature in nine days; long and severe relapse with hemorrhages, severe myo-endocarditis; recovery.*

Patient.—Jacob F., aged 19, Austrian, admitted on Sept. 18, 1903, to male ward I, with a history of typhoid fever of four weeks' duration, but he had only gone to bed six days before. Diarrhea, four or five stools a day.

Examination.—On admission temperature, 104; pulse, 132; respiration, 26. Positive Widal; white blood count, 8,200. Abdomen lax, tympanitic; roseolæ on chest and back. Hemorrhagic eruption over the right tibia. Liver extends from the sixth rib to one finger's breadth below the free border. General condition good.

September 21, 4 a. m. Complains of sudden, sharp, sticking, cramplike pain in the lower abdomen, most marked in the right iliac fossa. Temperature rose from 102.2 to 105. Slight chill. Temperature 105 at 5 a. m. Pulse rose from 90 to 120. Looks somewhat worse, being distinctly sicker, crying out with pain, which is continuous with exacerbations. Rigidity and tenderness in the right iliac region; nothing palpable; no other rigidity. Some tenderness in the left iliac fossa. Whole abdomen tympanitic. Liver dullness extends from the fourth space to two finger's breadths above the free border, where there is tympany. No obliteration of liver dullness *in axilla*. Slight abdominal distension, most marked in epigastrium. Respiratory movements present in abdomen. Respiration causes pain. Resists flexion of legs. No sweat. 7 a. m., general condition the same. Tongue dry; no change in temperature or pulse rate. Quality of pulse very good. Rigidity very much increased in right iliac fossa and extends upward to free border of ribs. Rigidity in left iliac fossa as high as umbilicus. Liver flatness obliterated anteriorly as high as tenth rib (tympany). Flat and dull area in axilla over liver became tympanitic with patient on left side. No signs of fluid. Pain somewhat diminished. 9:30 a. m., condition the same. Temperature, 105.6. Transferred to second surgical service and operated on by Dr. Elsberg.

Operation.—Laparotomy disclosed a moderate amount of cloudy serous fluid. About eight inches from the ileocecal valve a perforation was found and sutured. About a foot further on there was a suspicious ulcer which was also sutured. The abdominal cavity was flushed with normal saline solution and closed. The peritoneal fluid contained the bacterium coli.

The patient made an uninterrupted recovery from the operation except for some vomiting and distension, the typhoid fever running its course and the temperature coming down to normal on September 29. On September 30 began a severe relapse.

Relapse.—October 5, patient had a hemorrhage and was sent back to the medical service with a sinus due to infection of the abdominal wall. No further hemorrhages. Relapse exceedingly severe owing to the fact that he suffered from a severe myocarditis superadded to an old endocarditis. For eight days (up to October 13) patient was *in extremis,* the pulse being exceedingly poor in quality and very irregular, both in rate and force, at times being imperceptible for hours. After eight days the cardiac condition improved and the temperature fell to 98.8, immediately shooting up again to 103, where it remained until October 17, when it became normal. The patient was discharged cured Nov. 4, 1903.

Case 15.—*Typhoid fever; very severe course; profuse hemorrhages; perforation on twenty-fifth day; no operation; death.*

Patient.—Abram L., aged 30, Austrian, admitted on Sept. 26, 1903, to male ward I, with a history of typhoid fever of two weeks' duration.

Examination.—His general condition on admission to the hospital was poor. Temperature, 105.6; pulse, 120; respiration, 30. Liver extends to the free border. Abdomen somewhat distended and tympanitic; no rigidity. Positive Widal, 1 to 50. White blood cells, 8,600.. The case ran an extremely severe, septic course with marked delirium, subsultus. etc. Moderate diarrhea; fairly marked distension of abdomen but no tenderness.

This severe toxemia continued until October 5 (twenty-fourth day) when, at 9 a. m., he had an intestinal hemorrhage of about four ounces. Temperature dropped from 104.4 to 101. Pulse rose from 94 to 114. White cells, 4,900. Abdomen soft; no tenderness, no rigidity. Liver percusses to the free border. At 8 p. m., temperature, 103.4; pulse, 110; white cells, 4,500. In the afternoon a subcutaneous gelatin injection was given and a gelatin enema was also used.

October 6. During the night had two hemorrhages, about a pint altogether. Temperature fell from 104.4 at 3 a. m. to 99.2 at 3 p. m. The pulse dropped from 110 to 82; respiration the same as yesterday, 32. White cells, 5,800 at noon; 5,400 at 6 p. m. During the day the patient's condition became worse; abdomen somewhat distended but not tender; liver dullness obliterated for three finger's breadths above the free border; flatness beginning at the sixth rib; dullness not obscured in the axilla. At 6 p. m., abdomen not distended, but somewhat rigid, especially in the right iliac fossa. Respiratory movements absent in the upper part of the abdomen, with general tenderness, especially in the lower half. Liver dullness decreasing in the mammillary line, reaching to fifth rib, but not obscured in axilla. No nausea, vomiting, chill nor leucocytosis, the count at 6 p. m. being 5,400. Temperature between 99.2 and 102.2; respiration, 38; pulse between 90 and 100. The symptoms gradually increasing, a perforative peritonitis was diagnosed, but operation was not permitted.

October 7. Eight a. m., condition worse; hippocratic facies; marked subsultus; cold sweats; pulse, 120; respiration, 35; temperature,100.6; white blood cells, 5,000. Vomited for the first time, the vomitus being brownish. Abdomen is more distended, with greater tenderness in the lower half; liver tympany reaches fifth space in the mammillary line, being two finger breadths higher than yesterday. Spleen entirely obscured. Respiration thoracic. Much flatus expelled through rectal tube. At 9 p. m. temperature fell to 98.6; respiration, 38. This improvement was of temporary duration only, for the pulse, respiration and temperature rapidly rose and the patient died at 1 a. m. on October 9. No autopsy.

Case 16.—*Typhoid fever; severe course; perforation on twenty-third day; operation; death.*

Patient.—Jacob C., aged 16, Austrian, was admitted to the male ward I, Oct. 27, 1903, with a history of typhoid fever of insidious onset and of twenty days' duration. He took to bed twelve days previously on account of chill, severe headache, fever and abdominal pain; he also had profuse sweats and from five to six diarrheal movements daily.

Examination.—On admission general condition only fair; delirious; abdomen generally tympanitic; slight tenderness, but no rigidity. Liver flatness in the mammillary line extends from the seventh space to the free border edge, being just palpable. Spleen palpable. Temperature, 105; pulse, 100; respiration, 26; white blood count, 11,600. Widal positive, 1 to 50.

October 29. At 6 a. m., general condition not so good. Abdomen slightly distended and tender, especially in the right iliac fossa. General tympany; liver dullness obliterated in the axillary line, in the axilla flatness to the free border. The temperature, which had fallen from 104 at 3 a. m. to 101.8 at 6 a. m., rose to 104 at noon; pulse, which had remained at 88, rose to 100 at noon, and respiration rose from 23 at 6 a. m. to 37 at noon. 6 p. m., no special change in the patient's condition, but it is noted that there is increased abdominal rigidity; no distension; no pain, but slight general tenderness; no vomiting; no chill. Liver dullness at the fourth space in the mammillary line; *in the axilla sixth space.* Temperature remained steady at 104.5, but the pulse rose at 6 p. m. to 130, dropped to 102 at 9 p. m., and rose to 124 at midnight. Respiration, which had fallen to 28, rose to 37 at midnight. No special character about the breathnig. Leucocyte count at 9:30 p. m., 11,700.

October 30. Signs the same with the exception that there was a little more distension and there was dullness in the left flank. Diarrhea.

Operation.—Diagnosis of perforation having been made, he was transferred to the service of Dr. Lilienthal, who operated at noon and found a perforation low down in the ileum, covered with omentum; fibrinous adhesions; no free gas nor feces in the peritoneal cavity, only some cloudy serum. The perforation was sutured, but the patient never rallied after the operation. There was continuous vomiting and in spite of vigorous stimulation he died on November 3.

Note.—The exact time of perforation could not be determined in this case owing to the patient being delirious and to the vagueness of the onset of the symptoms.

Case 17.—*Perforation at the end of the fifth week of typhoid fever; operation two days after perforation; evacuation of large fecal abscess; artificial anus; drainage; recovery.*

Patient.—X., aged 21, Russian, was admitted on Nov. 13, 1903. He had been ill with typhoid fever for five weeks, having been referred to the hospital by Dr. Alfred Meyer, who had seen him in consultation. The details of the history of his illness are very vague.

History.—Two days previously he had had an attack of severe general crampy abdominal pain; since then there had been severe general abdominal tenderness. No chill at onset; did not vomit and has not vomited since; has had no movement of the bowels even after an enema; no gas has passed.

Examination.—On admission his general condition was fair and he certainly did not give one the impression of a patient who had a large quantity of purulent fluid in his abdomen, as was afterward found at the operation. The abdomen was generally tympanitic, tender and distended; the lower border of the liver and spleen obscured by tympany; there was movable dullness in both flanks. Temperature on admission, 100.2; pulse, 120; respiration, 26; white blood count, 9,000.

Operation.—He was immediately operated on by Dr. Moschcowitz. There were adhesions of the coils of gut to the abdominal wall, collections of foul, yellow pus being found between the coils; there was a large abscess in the pelvis and a perforation the size of a quarter of a dollar was found in the ileum and sutured. The edge of the perforation was sutured to the peritoneum, the abscess was drained with a tube, and the rest of the wound closed in layers.

Result.—November 14. The temperature, which had arisen to 104 nine hours after the operation, fell to 99 in twenty-six hours. His convalescence was uninterrupted. The artificial anus was subsequently closed and the patient left the hospital cured in the middle of December.

Case 18.—*Typhoid fever; walking case; perforation on thirty-fifth day while on bed-pan; operation six hours later; death.*

Patient.—Samuel L., aged 24, was admitted Dec. 14, 1903, to male ward I, with typhoid fever of three weeks' duration. For two weeks he had taken cathartics for the constipation a number of times, the last cathartic being taken two days before admission. Has been in bed for only two days. Fever has only been marked since the day before admission. Has complained of abdominal pain for two days.

Examination.—On admission temperature, 102; shortly after that he had a severe chill, after which the temperature rose to 105. Abdomen is lax; no distension, no tenderness. Liver dullness to the free border, not palpable. Widal positive, 1 to 50.

The course of the disease was severe. Various blood counts between 5,000 and 6,000. Abdomen was scaphoid; no tenderness.

December 26. Patient improving; temperature beginning to fall, ranging between 102 and 103; leucocyte count, 6,000; abdomen negative.

December 27. At 4:30 a. m., while the patient was on the bed-pan, he suddenly experienced a severe abdominal pain which caused him to cry out. This lasted only a short time and when seen fifteen minutes later he was quiet. Pulse, 100. Abdomen somewhat scaphoid and soft, but with slight rigidity over the lower part of the right rectus muscle. Patient lies with thighs flexed; tenderness in the lower half of the abdomen, especially on the right side. General tympany; tympany over the liver two fingers' breadth above the free border in the mammillary line; no axillary tympany. Breathing thoracic and upper abdominal. Temperature at this time, 102.8; pulse, 100; white blood count, 6,600. At 6:30 he had another attack of pain. Pulse rose to 116. At 9 a. m. patient's general condition was the same; had one stool which contained no blood. No nausea, vomiting, chill nor collapse. Pulse of fair quality; temperature has fallen to 101.6. Rectal examination negative.

Operation.—At 10:45 a. m. he was operated on by Dr. Gerster; duration of operation, 45 minutes. Free fluid was found in the peritoneal cavity, but no free gas or fecal material; no peritonitis; no injection of intestine. A small perforation was found in the lower ileum surrounded by a necrotic area and was closed by Lembert suture. No other perforation was looked for on account of the poor condition of the patient at this time, pulse being 160 and of poor quality.

Following the operation the temperature rose to 105.6, then fell rapidly. Pulse after the operation, 132, and respiration, 32.

December 28. Temperature has fallen to 96.2; pulse, 82; respiration, 22. No nausea nor vomiting, but complains of some abdominal pain, with slight distension and tenderness in the epigastrium. Liver flatness obliterated from the sixth space downward in the mammillary line. In the afternoon there was hiccough: vomited once in the evening; bowels moved during the day. In the evening pulse grew more rapid and feeble. Patient died at midnight.

Wound Examination.—A sutured perforation with sutures intact was found in the ileum ten inches above the cecum and a second perforation beyond this, this being protected by the adherence of the omentum. No peritonitis present.

Case 19.—*Typhoid fever; walking case; admitted with perforation, which had occurred on fifteenth day; operation forty-eight hours later; fecal abscess drained; recovery.*

Patient.—Jacob M., aged 25, Russian, admitted to male ward 2, Dec. 10, 1903, with a history of walking typhoid of two weeks' duration.

History.—Stopped work two days before admission because he felt "sleepy," but did not go to bed. Had one watery yellow stool each day. No abdominal pain until the day before admission, when he had severe, sudden sticking pain in the lower abdomen on both sides, which caused him to go to bed. Was chilly, vomited some watery fluid at the onset of the pain. The vomiting persisted every fifteen minutes. That night he was seen by a physician, who found a temperature of 106; pulse, 120. At 5 a. m. on the day of his admission the pain and vomiting had abated.

Examination.—On admission to the hospital at 9 a. m. his general condition was good. Temperature, 105.2; pulse, 110; respiration, 26; white blood count, 14,200; negative Widal. Abdomen retracted and tender, especially on the left side; walls rigid and tympanitic. Dullness in the left flank; dull tympany in the right flank, but no change with change of posture. Liver dullness begins at the fourth space; no flatness; tympany begins three fingers' breadth above the free costal border in the mammillary line, the same in the axillary line. Spleen, in axillary line, dullness at the sixth rib, becomes tympanitic four fingers' breadth above the free border. Rectal examination: On the left side, high up, a small, irregular mass which was not hard nor tender, could be felt.

Urine: Trace of albumin, hyaline casts, a few blood cells.

After admission he twice vomited bile-stained fluid and the abdomen became more distended. There was an elliptical area of tenderness the size of an orange in the left iliac fossa midway between the symphisis and the umbilicus. The tympany over the liver had risen two fingers' breadths above the line first noted.

Operation.—There was delay in obtaining consent for operation, which was not performed until 6 p. m. by Dr. Lilienthal. A median incision was made below the umbilicus, two and one-half inches long. To the left of the median line, corresponding to the area of tenderness above noted, a large fecal abscess was evacuated. No further exploration was made. Tube drainage.

The further course of his disease was that of a severe typhoid.

December 11. Condition of the patient worse; temperature ranged between 102 and 103. Frequent vomiting, but no abdominal tenderness except over the wound. Slight icterus. Leucocytes, 13,600; negative Widal. Hypostasis at both bases.

December 13. Leucocytes, 7,100.

December 14. Leucocytes, 7,400. Vomiting has ceased. He now takes nourishment by mouth. Temperature range, 102; general condition better.

December 15. Temperature still high. No rectal mass to be felt.

December 21. Still running continuous temperature between 102 and 103; general condition fair. Fecal fistula persists; granulations healthy. Repeated Widal tests having been negative. a blood culture was made by Dr. Libman, who reported the presence of typhoid bacilli in the blood. The first positive Widal, 1 to 50, was reported five days later, December 26, the thirty-first day of the disease. It remained positive thereafter.

The further course of his disease was complicated by a pneumonia and a right otitis which required perforation.

Temperature reached normal on January 12. The fecal sinus closed at the end of January, when he was discharged cured.

DISCUSSION.

Dr. William Osler, Baltimore. stated his opinion that one of the most important and essential things in these cases is intelligent watchfulness on the part of the physician looking for changes in the patient's condition in typhoid fever. In hospital practice this is easy; there the specific things the house physician should look for in typhoid fever can and should be explicitly stated in writing. The physician should be kept on the *qui vive* looking for these changes and should be ready to report them promptly to the attending physician within ten minutes after they have been noted. Dr. Osler also emphasized the need for the prompt co-operation of the surgeon. In general hospital cases there is not time to call the attending surgeon and, therefore, when the case has been carefully studied and diagnosis of perforation made, the house surgeon should immediately operate. The last case at the Johns Hopkins Hospital, he said, illustrates the importance of this. A strong, robust German, in the tenth or eleventh day of the disease, at 12 o'clock was suddenly seized with pain in the abdomen. He was seen by Dr. McCrae and was also carefully watched by the resident surgeon. He was operated on at 3 o'clock. The interesting thing was that the operation seemed to make no difference in the progress of the case. The perforation was found, was fixed and the patient made an uneventful recovery from a very severe attack of typhoid fever. The records of 19 cases with perforation that were operated on show that 7 recovered, which is an average of 33 per cent. and is as good as can be expected in a general hospital where the very severe cases are received, sometimes even with perforative peritonitis.

Dr. J. C. Wilson, Philadelphia, said that one of the rules that he gives the resident physicians, particularly in the German and Pennsylvania hospitals, is to ascertain the conditions as regards rigidity as a mater of routine at every visit. The mere suspicion of rigidity of the right side, at the right lower quadrant of the rectus muscle, requires a report at once to the general physician. Pain, particularly if with rigidity, should make the physician notify the surgeon to come prepared to operate, and the patient should be made ready to go to the operating room without waiting for the coming of the surgeon. That is one of the most important points regarding the routine management of enteric fever from the standpoint of early diagnosis of perforation. On the other hand, said Dr. Wilson, in several cases sudden intense pain occurred on the right side of the abdomen, in the iliac region, with rigidity of muscles, but with very little constitutional disturbance; in a few hours these symptoms passed away and the patient was left apparently as well as previously. There was no perforation and he was at a loss to account for it. Dr. Wilson is strongly of the opinion that hemorrhage and perforation very rarely occur at the same time, but he thinks that hemorrhage is not rarely a precursor of perforation and, therefore, that a vigilant watching is very necessary. The time has come for the profession seriously to consider opening the abdomen to stop the bleeding.

Dr. Morris Manges, New York, agreed with Dr. Osler's points and said that the whole trouble of diagnosis in typhoid perforation in the early stages is that the general practitioner wants too much for diagnosis.

EARLY DIAGNOSIS AND OPERATIVE TREATMENT OF GASTRIC CANCER.

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The hopelessness of pyloric cancer, or, indeed, of any form of gastric cancer when the diagnosis has become so plain that "he who runs may read," and the possibility of affording prolonged or even permanent relief if timely surgical interference could be advised, makes its early diagnosis of paramount importance. Unfortunately, it is one of the most difficult chapters in internal medicine, and it must be confessed that we are to-day without a single pathognomonic sign of early pyloric or other gastric cancer. The fact is that in most cases of gastric cancer, as in many other chronic diseases, the initial stages are practically symptomless. Symptoms, however, usually supervene at a comparatively early stage, and many of these cases would have a possible chance for more or less successful surgical treatment if these symptoms were given proper consideration and the patient placed under the care and treatment of a physician skilled in gastric disorders. In general, it may be said that any case of progressive and intractable stomach disease, especially if developing in an otherwise healthy patient, or even in a patient who has had a very prolonged but comparatively slight digestive disorder, should not be allowed to continue more than five or six weeks without an accurate diagnosis being made by a competent physician. It is possible that at such an early stage the only thing that can be determined is an existing gastritis; but the character of the secretion and the motility of the stomach muscle can be determined and noted as a starting point for further observation of the case. Later, if the patient does not improve with favorable environment and proper local and general treatment, but instead grows progressively worse, there comes a time when an exploratory laparotomy should be advised for the two-fold purpose of determining the presence or absence of a neoplasm and its removal if present. Just when this point arrives can not be decided by any fixed rule, but is a matter of clinical judgment in the individual case under consideration. It must be decided on the basis of all available facts concerning the chemistry of digestion, the débris of the fasting stomach, general nutrition, metabolism, etc., no one of which will be sufficient to make out a very strongly probable case, but which taken together may create a suspicion so strong as to warrant, or even to demand, that the patient be offered an exploratory procedure.

It may be said that the results of pylorectomy for cancer have not been sufficiently good to justify the procedure. If this is true, and it is easily debatable, it is because the diagnosis has not been made sufficiently early. Physicians have not been willing to take the responsibility of advising an exploratory laparotomy while the case remains in doubt, and this procedure is necessary if therapeutic results are to be obtained. There is no doubt whatever that cancer is primarily a local disease, and that if it can be sufficiently early recognized and eradicated by free incision, a permanent cure may reasonably be expected. It seems to me that it is our duty, therefore, to be on the alert and to advise operation at what seems to be the proper moment. It is simply a question of clinical judgment as to when such a procedure is justifiable, and if any serious attempt is made to meet these questions in the manner indicated, it must now and then happen that a mistaken exploration will be made. This, however, with the perfect technic of present abdominal surgery and the practically complete absence of mortality in simple exploratory procedures, is not a matter to be dreaded so much as the possibility of permitting a case of incipient cancer to pass the operative period.

The following case, as the history will show, was operated on too late, although the operation was advised immediately after my examination. It was postponed about two weeks by circumstances connected with the patient, but this, of course, did not substantially change the conditions, which were obviously far beyond radical operative relief.

Patient.—Mr. B., aged 40, laborer, was referred to me by Dr. R. E. Brokaw, Portland, Ind., Sept. 1, 1904.

History.—The patient complained of indigestion beginning seven months previously, although for several years there had been a slight disturbance of gastric digestion. The first symptom referable to his present condition was a pain occurring in the region of the stomach with occasional vomiting coming on without reference to meals. This had grown progressively worse with, however, periods of exacerbation and of amelioration. The bowels were constipated and there was considerable flatulence, mostly referable to the region of the stomach, which was the cause of more or less pain. He said that at times there was a large transient swelling in the left epigastrium which was very painful, and on manipulation gave rise to gurgling sounds and finally would disappear with a sound of a splashing or gushing character.

Examination.—The general nutrition had been somewhat impaired. His weight in health was from 135 to 140 pounds, and at the time of my examination was 119 pounds. Physical examination was negative except that I thought I could distinguish, in the pyloric region, a small, hard nodule, tender on pressure, but quite movable, but this was not very distinct. Analysis of a test meal (Ewald test breakfast) showed 50 degrees of free HCl, total acidity of 150 degrees, strong biuret reaction, with very little unchanged starch. No lactic acid. The fasting stomach contained a dirty brownish fluid with large quantities of mucus, leucocytes and broken-down red blood corpuscles. There was a slight, even doubtful, trace of lactic acid and numerous Oppler-Boas bacilli. The blood examination showed 50 per cent. of hemoglobin, 3,000,000 red cells and 7,000 leucocytes. Analysis of the urine revealed nothing unusual except fibrinuria. Examination with the cardiometer showed the distance from incisors to stomach to be sixteen inches and revealed a moderate dilatation of the esophagus for from four to five inches above the cardiac. A subsequent test meal showed 30 degrees of free HCl.

Diagnosis.—On the basis of the clinical history, physical examination and stomach analysis, a probable diagnosis of pyloric cancer was made and operation advised. Pyloric stenosis was positively diagnosed, the only question being as to its malignant or non-malignant character.

Operation.—The operation was performed two weeks later by Dr. Miles F. Porter, and a pyloric cancer of considerable size was found. There were secondary deposits in the gastrohepatic omentum as high as examination could be made, and it was decided to be too late for resection and a gastroenterostomy was made.

Result.—The patient made a good recovery, but, of course, will succumb within a few months.

The probabilities are that in such a case as this the symptoms began sufficiently early to make a radical procedure possible if we are only willing to act on a strong suspicion corroborated by careful and somewhat prolonged study of the case.

In another case, seen only two weeks before death, too late for any operative procedure, the symptoms had been pronounced for months, and yet, so far as could be determined, the disease was limited absolutely to the pylorus without any secondary deposits whatever, and in this case also there would have been an excellent opportunity for a radical extirpation of the tumor with a fair chance of permanent cure if action had been taken early.

What now are the clinical manifestations which will justify or demand an exploratory procedure *in the interest of these cases in the future?* From what has already been said, it is plain that any categorical answer can not be given to this question. In some cases, the disease is latent to so late a period that it is manifestly impossible even to suspect the existence of the disease during its early stage. In one of my cases, for instance, an elderly man consulted me on account of a slight indigestion of a few weeks' duration. I urged him to permit me to make a physical examination which he declined to do on that occasion, but insisted on my prescribing something for temporary relief, saying that he would permit me to make the examination later. He really appeared in fairly good health, and from his appearance I had not the slightest suspicion of malignant disease. About two weeks later, I was asked to call at his residence, and found that he had been vomiting typical coffee-ground material, and on placing my hand over the stomach found a tumor half as large as an orange. He died two or three weeks later. This man apparently was in his usual health until within five or six weeks of the time of his death. He had retired from business and his habits were not active, and this, perhaps, masked the debility which must have been present to a greater degree than was suspected.

In cases of gastric cancer occurring in stomachs previously normal, and in which the symptoms manifest themselves with more or less suddeness, a strong suspicion of malignancy should be entertained at once, and only sufficient time taken in the study and observation of the case to establish its progressive character. It must be remembered that in such a case the onset of symptoms is not contemporaneous with the inception of the disease, but simply marks the point of development at which gastric function and perhaps general nutrition become impaired. The latent stage may be brief or long, according to the location, rapidity of development, and nervous organization of the individual case, and it is always possible that the first obtrusive symptom may not be very early. My own observation in regard to nutrition is certainly contrary to that of Krönlein, who mentions emaciation as the earliest symptom. Nutrition is likely to suffer slowly, soon after the development of positive symptoms, but in a large majority of my cases other symptoms, such as pain, vomiting, etc., have distinctly preceded emaciation. This, for instance, was true in the case reported in this paper. The patient was in his ordinary health seven months before, being referred to me without any perceptible diminution of weight or strength, and yet the symptoms arising at that time undoubtedly marked a more or less advanced stage of the pyloric cancer. This appears to me to be an important question, as too much stress is commonly laid on the state of general nutrition. There is no reason why a purely local disease involving the pyloric end of the stomach should impair nutrition and cause emaciation until it produces obstructive phenomena of some sort. There may even be improvement of nutrition after the development of symptoms referable to the local lesion, and more or less improvement of general health, but this, of course, will be *transient* in character. In the two weeks, for instance, which elapsed between my examination of the case recorded and his return for operation, he gained three pounds in weight, both weighings having been made either by myself or by my assistants in my own office, and careful reference being made to clothing, etc. It is undoubtedly true that in many cases *emaciation* is an early conspicuous symptom, but it should be fully recognized that there are many exceptions to this rule, if, indeed, it is the rule at all.

Stomach analysis, as a rule, will give only corroborative evidence. In fact, in the early stage which we are now considering, there are no exceptions to this rule, and the corroborative evidence itself may be slight or lacking. The absence of free HCl or the presence of lactic acid can not be assigned a high value in the diagnosis of gastric cancer, except as they corroborate other findings. Many cases are on record, like the one already reported, in which free HCl is present in normal quantities, and it is well known that it may disappear in simple gastric catarrh. The same remark applies to lactic acid which was really absent from the test meal in this case, and is frequently present, as is well known, in certain forms of non-malignant disease. The Oppler-Boas bacillus is very frequently associated with gastric cancer, but it simply means a certain type of lactic-acid fermentation, and while I attach more importance to it than I do to the HCl and lactic-acid phenomena, it is only strongly corroborative, as I have found it in several cases which were undoubtedly benign in character, as proved by subsequent history, as have other observers also. Atypical mytosis, which was thought by Hemmeter and others to have considerable diagnostic value, is not distinctive. It is somewhat characteristic of rapid neoplastic formation, and if found with great frequency is entitled to some consideration in summing up the total findings.

The pain and vomiting of gastric cancer are in no sense distinctive, and may be duplicated in non-malignant disease. The anemia which is so marked in some cases is purely a secondary phenomenon, and the leucocyte count is not significant. Even absence of digestion leucocytosis only means that the products of digestion are entering the blood slowly, or that the reactionary power of the phagocytic mechanism is greatly impaired, and this could only be a late phenomenon and without value for our present purposes.

The prolonged retention of stomach contents, or as Einhorn calls it, ischochymia is a symptom of considerable value, and occurs rather early. It is simply an expression of gastric myasthenia, with possible pyloric obstruction, and may occur in other cases, and, moreover, it is not likely to be marked at a stage when diagnosis is most important and most desirable. Like the other symptoms, therefore, it is only corroborative, and it is undoubtedly true that many a stomach with fully developed cancer may have practically unimpaired motility and empty itself perfectly.

We can omit from our present consideration such phenomena as coffee-ground vomit and a well-defined tumor, cancerous fragments in washwater, etc., as they do not belong to the stage of the disease under discussion.

In summing up the diagnostic data, we are admittedly unable to place our fingers on a single symptom or analytical finding, the presence of which can be relied on to establish the diagnosis of early gastric cancer, and the absence of which can exclude it. This, perhaps, may be said to be true of any combination of several symptoms. This is unfortunate because of the impossibility of establishing a general diagnostic formula, but it does not justly express the possibility of the experienced and skilled diagnostician of establishing a probable diagnosis strong enough to justify surgical intervention. In fact, it is very largely a question of the individual case and the individual diagnostician. A few general propositions, however, may be set down even at the risk of repetition.

The earliest symptoms of gastric cancer are simply the manifestation of disturbed gastric function and may present almost any type of disturbance influenced, of course, by the location of the neoplasm, the rapidity of its growth, and the vulnerability of the muscular and secretory apparatus and the nerve centers, the original vigor of the digestive apparatus and the virility of the organism as a whole. As an initial symptom there may be pain in one case, vomiting in another, impaired secretion in another, and emaciation in still others. When a patient, therefore, presents himself with some form of gastric disturbance, the first information to obtain is an accurate history of its development, its duration, its progressive or unprogressive character, the state of the general nutrition, etc. The characteristic thing about the nutritional disturbance in gastric cancer is its slow development; it may, of course, be rapid, but this is probably exceptional. It is to be presumed that the external physical examination will be negative, although Mayo Robson says it is still not too late to attempt relief even if a palpable tumor is present. The next step is to secure the contents of the fasting stomach in the morning before breakfast; if there is no fluid, any detritus that is present should be secured by irrigation. A careful chemical and microscopic examination may throw some light on the diagnosis. The presence of lactic acid, of the Oppler-Boas bacillus, of the evidences of an associated gastric catarrh, and of broken-down blood cells are all more or less significant. An Ewald test breakfast should then be given, and the character of the digestive processes critically studied. The presence or absence of HCl, its amount if present, the intensity of the biuret reaction, or its absence, the presence or absence of the various enzymes are salient points here. The motor function, in some measure, will be determined at the same time, but should be studied further by an examination of the stomach contents at varying intervals after larger meals.

The summing up of all the data thus obtained will rarely, if ever, justify a prompt positive diagnosis of gastric cancer in the early stage. However, it usually will strengthen or dispel the suspicion, and will serve as a starting point for such further clinical study and observation of the case as the importance, obscurity and difficulty of the questions involved imperatively demand. This means that the patient should be continuously under critical study[1] and treatment, the therapeutic tests being of the utmost importance, although, as already indicated, they may prove temporarily misleading.

It is not my purpose to enter into an extended discussion of the operative treatment of gastric cancer, as this is entirely outside of my province, except as an observer of the work of others. One of the most discouraging points which makes the internist hesitate to advise radical procedures is the very large mortality attending gastrectomies. About one-third of all the patients die from the effects of the operation. This is a frightful mortality, and one which ought to be reduced if cases are taken to the surgeon earlier. Haberkant says that with extensive adhesions the mortality is 70 per cent., and without them, 27 per cent. We thus see that even without adhesions more than one-fourth of all the patients die from the effects of the operation. When we can be assured of a mortality of not over 10 or 12 per cent. in the absence of adhesions, and with a fairly good general condition, the operation can be urged on a patient with better grace.

It appears to me that gastrectomy should be the operation of choice, as gastroenterostomy is admittedly only palliative in character, and does not by any means offer the same degree of relief as a radical gastrectomy does. This is shown by the average duration of life after the two operations for gastric cancer. Patients live, on an average, after gastroenterostomy from three to four

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[1] The amount of time varies widely. In some cases three or four days is sufficient, in others three or four weeks or even longer. These latter cases are the ones in which suspicious tendencies occur and in which the influence of treatment on the stomach function is important. Ordinarily one or two weeks' time is ample.

months, after gastrectomy, more than a year. The reasons for this are sufficiently plain. When recurrence takes place after a gastrectomy, it is presumably from the secondary deposits which could not be removed, or because of an insufficiently wide excursion of the knife in removing the segment of the stomach. It is quite natural that these deposits should not develop so rapidly as the original active focus of the disease, probably in a state of disintegration on the mucous surfaces. Beside this, the hemorrhages and septic secretions from the ulcerating surfaces debilitate and poison the patient when a gastroenterostomy has been done, as no change whatever has been made in the local morbid process, and such benefit as does accrue is simply the result of better drainage of the contents of the stomach.

The question as to whether the presence of a palpable tumor makes it too late for surgical intervention is a most intensely interesting and practical one. It is probably true, in a vast majority of cases, that when the growth has reached a stage when it can be palpated through the abdominal wall sufficient metastases have occurred to make a complete removal impossible. In exceptional cases, however, this may not be true, and I have seen at least one case in which a somewhat doubtful palpable growth was apparently strictly limited to the pylorus without secondary deposits. Even if a radical cure can not be anticipated, the relief of from one to two years which should follow a gastrectomy would be worth while as a simple palliative procedure, could it be shorn of its terrible mortality. In conclusion, I wish to affirm with all the emphasis possible the fact which Riegel so forcibly points out, that if we are ever to get better results in dealing with gastric cancer, it will be when the internist acquires the diagnostic acumen necessary to enable him to strongly suspect malignancy, and possesses in addition the courage necessary to enable him to act on that suspicion before it becomes a certainty. In order that this may fairly be demanded of him, however, ample opportunity must be offered for study and observation of the case; and for this he is entirely dependent on the promptness with which the family physician recognizes the doubtful nature of the case and refers it for diagnosis. As a matter of fact, the primary responsibility really rests with the family physician who, in too many instances, treats obscure and intractable gastric disorders in a routine manner with only a faint suspicion of their real pathology, and who, in so doing, permits cases of malignant disease to drift supinely on until they enter that realm above whose portals may well be inscribed Dante's words:

> "Abandon hope, all ye who enter here."

SOME COMPLETE URINE ANALYSES.

J. H. LONG.

CHICAGO.

A search through the chemical and physiologic literature will show that comparatively few complete analyses of urine, representing the full day's excretion, are on record. In the course of some other work, I found it necessary to make a number of lengthy determinations of this kind, and I present here the results obtained.

Beside the organic substances, urea, uric acid and creatinin, the urine contains essentially combinations of three inorganic acids and five inorganic bases. That is, there are combinations of sodium, potassium, ammonium, calcium and magnesium with hydrochloric, sulphuric, and phosphoric acids, the last two being largely products of oxidation metabolism. Some of the text-books of urine analysis and of physiology make rather misleading statements about the relations which exist between these substances and the limits within which they vary; and the old errors are still repeated in regard to the normal volume of urine excreted. It is the object of this paper to give some new and accurate data on these and on other points.

THE NORMAL VOLUME OF THE URINE.

Many of our standard data on physiologic chemical matters have been taken from German sources, and in so doing we sometimes make the error of accepting statements which can not be true under American conditions. The average daily liquid consumption here is much below that in Germany, while the consumption of solid foods is certainly higher. The average volume of from 1,500 to 2,000 c.c. of urine for the day is far too high for our conditions, while a specific gravity of from 1,015 to 1,020 is correspondingly low. Among our text-books, the recent work of Charles Simon, "Physiological Chemistry," is the only one I have examined carefully which makes a correct statement on these matters. I will add some figures of my own. In a series of 24 observations, in which the whole day's excretion of a number of men was saved, I found the average volume to be 1,167 c.c., with extremes of 765 c.c. and 1,950 c.c. The average specific gravity was 1,025 at 20 degrees, referred to water at 15 degrees as standard. In a second series of 24 examinations of the urine of vegetarians, a mean volume of 874 c.c. was found and a specific gravity of 1,030 under the same conditions. In a third series of examinations of male students, janitors and nurses, I found a mean volume of 1,221 c.c., and for the same number of urines from female nurses, I found a volume of 859 c.c. These results were secured in 1900 and in 1901. More recently still other collections from various sources have shown a volume of about 1,200 c.c. as an average, and this is certainly as high as should be taken for male urine.

In calculating the day's excretion for the specific gravity by the use of the Trapp or Haeser coefficient, these facts become of importance. In using these coefficients it must be remembered that they are based on a specific gravity at 15 degrees, generally, compared with water at the same temperature. At the present time, following a suggestion of Squibb, many urinometers are graduated for a temperature of 25 degrees, and usually without a statement as to the comparison water temperature.

CHEMICAL ANALYSES.

Six complete analyses have been made by methods which need but little explanation. The alkalies were separated from 100 c.c. of urine as pure chlorids, by the Bunge process,[1] and the presence of potassium was determined with platinum chlorid. Calcium and magnesium were found in 200 c.c., and ammonia in 50 c.c. by the Schloesing method, the result being corrected by a previously determined factor. Chlorin was found by the Volhard-Arnold process, the excess of silver used in titration being measured after filtration. Phosphoric acid was found by the uranium titration, with use of cochineal as an indicator. The total sulphates were found in 50 c.c. by precipitating with barium chlorid in the presence of excess of hydrochloric acid, the mixture being kept hot for eight hours on the water-bath. The precipitate is collected on a Gooch asbestos funnel, washed with water and then with alcohol. By using the right kind of dense asbestos it is not at all necessary to destroy organic matter in the urine by chlorate and hydrochloric acid before precipitating. The precipitate may be collected and washed without the slightest loss, and rapidly, too, if properly chosen asbestos is employed. This is preferable to any method by which a great deal of foreign matter must be introduced in the purification.

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[1] Neubauer und Vogel: Analyse des Harns, 10th ed., p. 738.

I found urea by the mercury method, correcting the results by the method I explained in a former article.[2] The amount of uric acid was determined by the Hopkins process, and the creatinin by the Neubauer-Salkowski process.

To secure amounts of urine large enough to work with, I took for each analysis the mixed urines of three individuals for the twenty-four hours, the excretion for the three averaging 3.600 c.c. in each case. Three analyses were made on urines of men in normal health who were consuming a mixed animal and vegetable diet. In another set of tests I used three mixed vegetarian urines, collected from several individuals in the same way. In these cases the amount of urine for each day was smaller, averaging about 1,000 c.c. for each person. The results are given below in grams per 100 c.c. Numbers 1, 2 and 3 are the ordinary urines, and Numbers 4, 5 and 6 the vegetarian.

I must add, in explanation of this, that the men furnishing these urines live exclusively on vegetable foods, and were students and teachers in the American Medical Missionary College, Chicago and Battle Creek. To show the effect of a vegetable diet, urine collected in this way is much more satisfactory than is urine from persons kept on such a diet for a few days for experimental purposes.

TABLE 1.

TABLE OF RESULTS. GRAMS PER 100 c.c.

	1	2	3	4	5	6
Specific gravity 20%$_4$....	1.024	1.020	1.0'6	1.017	1.028	1.021
Urea..................	2.85	2.60	2.97	2.11	2.95	2.80
Creatinin..............	0.175	0.179	0.1414	0.0252	0.0910	0.105
Uric acid ($C_5H_2N_4O_3$)....	0.0641	0 0691	0.0876	0.0549	0.0769	0.0838
Ammonium, NH_4.........	0.0900	0.0840	0.1080	0.0800	0.0745	0.0576
Potassium, K............	0.1980	0.2455	0.2604	0.1416	0.4872	0.3869
Sodium, Na.............	0.3820	0.3710	0.4647	0 3419	0.3578	0.2705
Calcium, Ca.............	0.0104	0.0086	0 0132	0.0031	0.0164	0.0130
Magnesium, Mg...........	0 0092	0.0121	0 0152	0 0144	0.0225	0.0341
Chlorin, Cl.............	0 7366	0.7160	0.7739	0.5274	0.8165	0.5893
Phosphoric acid, PO_4....	0.1143	0.1742	0.3135	0.2062	0.3111	0.2230
Sulphuric acid, SO_4.......	0.1640	0.1964	0.3230	0.1965	0.2790	0.2039

It will be observed that there is great difference in the composition of these urines, and that there are wide limits in the relation of potassium to sodium. Table 2 shows the relation of the basic substances to the inorganic acids present, and for this purpose the combining power of the bases is expressed in terms of sodium and the acids in terms of chlorin.

In Table 2 the phosphates are assumed to be of the type M_3PO_4 and the urates of the type $M_2C_5H_2N_4O_3$. The acids found are accordingly much more than sufficient to combine with all the bases. In the mixed normal urine, however, the acid phosphates and probably the acid urates are always present so that the excess of free acid, when calculated in this way, would be much diminished. Table 3 gives the total bases and the acidity per 100 c.c. when the phosphoric acid is assumed to act in salts M_2HPO_4 and the uric acid as $MHC_5H_2N_4O_3$.

TABLE 2.—Na AND Cl EQUIVALENTS.

URINE 1.

.0900 NH_4 = .1150 Na
.1980 K = .1165 Na
.3820 Na = .3820 Na
.0104 Ca = .0119 Na
.0092 Mg = .0176 Na
.6430

.7366 Cl = .7366 Cl
.1640 SO_4 = .1213 Cl
.1143 PO_4 = 1281 Cl
.0641($C_5H_2N_4O_3$)'' = .0274 Cl
1.0134

.6430 Na = .9924 Cl.

URINE 2.

.0840 NH_4 = .1073 Na
.2455 K = .1445 Na
.3710 Na = .3710 Na
.0086 Ca = .0099 Na
.0121 Mg = .0233 Na
.6560

.7160 Cl = .7160 Cl
.1964 SO_4 = .1452 Cl
.1742 PO_4 = .1953 Cl
.0691($C_5H_2N_4O_3$)'' = .0295 Cl
1.0860

.6560 Na = 1.0126 Cl.

URINE 3.

.1080 NH_4 = .1380 Na
.2604 K = .1532 Na
.4647 Na = .4647 Na
.0132 Ca = .0152 Na
.0152 Mg = .0291 Na
.8002

.7739 Cl = .7759 Cl
.3230 SO_4 = .2389 Cl
.3135 PO_4 = .3514 Cl
.0876($C_5H_2N_4O_3$)'' = .0375 Cl
1.4017

.8002 Na = 1.2350 Cl.

URINE 4.

.0800 NH_4 = .1022 Na
.1416 K = .0833 Na
.3419 Na = .3419 Na
.0031 Ca = .0036 Na
.0144 Mg = .0276 Na
.5586

.5274 Cl = .5274 Cl
.1965 SO_4 = .1453 Cl
.2062 PO_4 = .2312 Cl
.0549 $C_5H_2N_4O_3$)'' = .0235 Cl
.9274

.5586 Na = .8622 Cl.

URINE 5.

.0745 NH_4 = .0952 Na
.4872 K = .2866 Na
.3578 Na = .3578 Na
.0164 Ca = .0188 Na
.0225 Mg = .0431 Na
.8015

.8165 Cl = .8165 Cl
.2790 SO_4 = .2063 Cl
.3111 PO_4 = .3487 Cl
.0769($C_5H_2N_4O_3$)'' = .03.9 Cl
1.4044

.8015 Na = 1.2371 Cl.

URINE 6.

.0576 NH_4 = .0736 Na
.3869 K = .2275 Na
.2705 Na = .2705 Na
.0130 Ca = .0149 Na
.0341 Mg = .0654 Na
.6519

.5893 Cl = .5893 Cl
.2039 SO_4 = .1508 Cl
.2230 PO_4 = .2500 Cl
.0838($C_5H_2N_4O_3$)'' = .0358 Cl
1.0259

.6519 Na = 1.0062 Cl.

TABLE 3.

No.	Bases as Na	Acids as *Cl*	Deficiency of Acid, as *Cl*
1..............................	.6430	.9570	.0354
2..............................	.6560	1.0062	.0064
3..............................	8002	1.2142	.0208
4..............................	.5586	.8386	.0236
5..............................	.8015	1.2714	(.0346)+
6..............................	.6519	.9247	.0875

This method of calculation exhibits an excess of the basic elements in all but the fifth urine. This urine was characterized further by a very high electrical conductivity. In all cases, however, another acid is present, the importance of which is commonly overlooked. This is carbonic acid, which plays a part as essential as that of ammonium, which likewise is usually omitted from consideration. The amount of carbonic acid normally present is much more than sufficient to form bicarbonates with the excess of bases indicated above.

Table 4, calculated empirically, gives an idea of the more important combinations as formed from the elements of the above analyses. The numbers refer to grams per 100 c.c., and for convenience in comparison the phosphates are figured as neutral salts.

The figures show, fairly correctly, the relative importance of the sodium potassium and ammonium salts. In all cases the chlorin is sufficient to combine with all the sodium, and, in the first, second, fifth and sixth urines, with a large part of the potassium also. In 2 cases, Nos. 5 and 6, the total weight of potassium salts is greater than the weight of sodium salts present. The ratio of the sodium to the potassium is shown by the following table:

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[2] The Journal A. M. A., May 30, 1903, p. 1508; Jour. Am. Chem. Soc., vol. xxiii, 1901, pp. 632-638.

TABLE 4.

	1	2	3	4	5	6
NaCl	.9716	.9436	1.1819	.8696	.9100	.6880
KCl	.3089	.3013	.1191	....	.5551	.3610
K_2SO_4	.0804	.1951	.4411	.3154	.4363	.3704
$(NH_4)_2SO_4$	.1646	.1222	.1098	.0312	.0527	....
K_3PO_4	....	....	....	....	....	.0565
$(NH_4)_3PO_4$	.1244	.1399	.2155	.1973	.1653	.1591
$Ca_3(PO_4)_2$	.0269	.0222	.0341	.0080	.0423	.0336
$Mg_3(PO_4)_2$	.0255	.0440	.0553	.0524	.0818	.1062
Mg, excess	.0022	....	....	....	....	.0055
PO_4, excess	....	.0395	.1152	.0375	.1204	....

TABLE 5.

	1		3	4	5	6
$\frac{Na}{K}$	1.929	1.511	1.784	2.414	0.734	0.700

In the three ordinary urines, the ratio is nearly uniform, with the sodium in considerable excess. In the vegetarian urines, Nos. 5 and 6, the ratios are close, with the potassium in excess. In No. 4, however, which is also a vegetarian urine, the ratio is peculiarly abnormal, the sodium being in very great excess. In consulting the table from which these ratios are taken, it will be seen that this urine is low in basic bodies throughout; the sodium is not high here, but the potassium is unusually deficient. In this urine the sodium and the chlorin are present in practically exact equivalents.

It will be interesting also to compare the excretions of urea and uric acid in these six urines. The relation is shown in Table 6.

TABLE 6.

	1	2	3	4	5	6
$\frac{\text{Urea}}{\text{Uric acid.}}$	43.8	37.2	33.6	38.3	37.9	32.9

The average ratio for the ordinary urine is 38.3 to 1, and for the vegetarian urine 36.4 to 1. The difference is not great enough to be considered as in any sense characteristic. It has been claimed that in the urine of vegetarians a relatively greater portion of the nitrogen is excreted as urea and less as uric acid, but these figures do not bear out the assumption.

The vegetarian urines all contain creatinin, although somewhat less than the others. This result confirms some data which I have previously reported,[3] and is important in proving beyond question that creatinin is a product of metabolism and not, as stated by many physiologists, a produce derived from the creatin of muscular food. The diet in the cases considered contained no creatin.

Finally, attention must be directed to the relatively high combining value of the ammonium present. In one case, it is more than equivalent to the potassium, while in two other cases it is but little below. The amount for the vegetarian urines is slightly lower than for the others, but in previous investigations the reverse has been the case. In this respect, therefore, as in others, there seems to be no characteristic difference between the two kinds of urine.

Northwestern University Medical School.

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[3] Jour. Am. Chem. Soc., xii, p. 592.

Special Article

IMMUNITY.

CHAPTER X.

THE PHENOMENON OF AGGLUTINATION.

Agglutination, in the bacteriologic sense, refers to the clumping and sedimentation of micro-organisms from a homogeneous suspension by the action of a serum. This is the so-called Gruber-Widal reaction.

Specificity.

A number of investigators had already seen that serums would often cause the clumping of bacteria, but Gruber and Durham first saw the significance of the phenomenon. They saw that only certain serums would agglutinate a particular bacterium, that the reaction was a specific one, and that the serum which would cause the strongest agglutination of a micro-organism was that of an animal which had been made immune to it by repeated injections.

Widal and Grunbaum.

Widal's service consisted in the utilization of the phenomenon as an aid in the diagnosis of typhoid fever. He is the originator of clinical serum diagnosis. It is perhaps largely a matter of accident that we speak of the Widal reaction rather than the Grünbaum reaction; Grünbaum was carrying on the same work at the same time, but Widal preceded him in the publication of his more extensive work.

Normal Agglutinins.

In the chapter on natural immunity it was stated that normal serums sometimes were able to agglutinate bacteria. Normal human serum may agglutinate the typhoid, colon, pyocyaneus, and dysentery bacilli, and occasionally the staphylococcus and cholera vibrio; it does not agglutinate the streptococcus and some other organisms. In certain cases it may agglutinate the typhoid bacillus even when the serum is diluted to one in thirty, a point of practical importance in the clinical use of the test. When a normal serum is found to have a high agglutinating power, a previous infection by the micro-organism is to be thought of. This possibility receives emphasis from the fact that the serum of a new-born child is devoid of many of the agglutinins which are found in later life. Hence, of the so-called normal agglutinins, many, after all, may be acquired properties.

Immune Agglutinins.

The term immune agglutinin is applied to the agglutinating substance of a serum, when the property has developed as a result of infection, or of systematic immunization with the organism. They are formed during infections with the organisms of typhoid, cholera, dysentery, plague, etc.

When produced artificially, the bacteria may be injected into the veins, subcutaneous tissue, and peritoneal cavity; in some cases they may be fed to animals, rubbed into the skin, or sprayed into the lungs. If certain micro-organisms are sealed up in a collodion sac and placed in the abdominal cavity of an animal, an agglutinating serum will be formed; the necessary substances diffuse through the sac and reach those body cells which produce the agglutinin. It is not necessary that living bacteria be injected; in fact, the strongest agglutinin is said to be formed by the injection of bacteria which have been killed by a temperature of 62 C. In certain instances, disintegration products and precipitates obtained from bacteria are efficient.

Agglutinin Producing Organisms.

Nearly all bacteria, even when non-pathogenic, will give rise to an agglutinating serum when injected: but not all have the power equally. Nicolle and Trenell distinguish three groups of bacteria in regard to their agglutinability by their homologous serums.[1] The first group includes easily agglutinable organisms, for the most pathogenic: Typhoid, dysentery, cholera, plague, glanders, and the colon, psittacosis, pyocyaneus bacilli, and the *B. enteritidis*. They yield agglutinating serums readily either as a result of infection or by immunization. The second group comprises organisms which, during infection or convalescence, do not produce agglutinins, but they may be forced to do so by the systematic immunization of animals. In the third group are included those which, even during prolonged immunization, rarely cause the formation of an agglutinating serum: the Friedlander bacillus. These facts may be taken as an index of the diseases in which we expect to obtain the agglutination of a bacterium by the serum of the patient.

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[1] The homologous organism for a typhoid serum, for example, is the typhoid bacillus, and vice versa; other organisms, or other serums, are heterologous. These are commonly used terms.

Variations in Agglutinogenic Power of Organisms.

The degree of agglutinating power which may be obtained by immunization varies greatly. Van der Velde speaks of a typhoid serum which in a dilution of one in one million was agglutinating, and Durham had a cholera serum which was effective in a dilution of one in two million. Such powerful serums are rarely obtained.

Even two different strains of the same organism may be very unequal in their ability to cause the formation of agglutinins. It is generally said that the typhoid bacillus, which is itself agglutinated with difficulty, gives rise to a weak agglutinating serum, while an easily agglutinable strain gives a strong agglutinin. The logic of this will become apparent when we consider the nature of the bacterial substance which stimulates to the formation of agglutinin.

Variations in Agglutinin.

That the agglutinating power of the serum of a typhoid patient varies from day to day is a fact of practical importance. It may be thirty times as strong one day as the next, and may even disappear entirely for a day or two. Hence the importance of making more than one test in a suspicious case, when the first trial has been doubtful or negative. There is no adequate explanation for this great variation. It is said that mixed infections, intestinal hemorrhage, or a sudden pouring out of typhoid bacilli into the circulation may cause a sudden reduction in the agglutinating power. This occurrence has an important bearing on the possibility of using the agglutinating power of the serum as a prognostic sign; although it has often been noted that in fatal infections agglutinins may be absent from the serum, the variations just mentioned indicate that prognosis could not be based safely on the result of a single agglutination test.

Distribution of Agglutinins in Body.

The agglutinating substance is found in the highest concentration in the blood serum, but it may be demonstrated in the various body fluids and in the extracts of organs; it is said to be particularly rich in the milk. It is present in the serum of an artificially produced blister, and it has been recommended that blistering be resorted to in order to obtain the serum for the test. The bile often agglutinates the typhoid bacillus, but the power has no necessary relationship to a pre-existing infection: it is possible that the agglutination in this case is due to obscure chemical causes rather than to the usual serum agglutinin. The administration of pilocarpin causes a rise in the agglutinating power of the tears, sputum and some other body fluids; the drug increases cell secretions.

Inheritance.

When a pregnant woman has typhoid fever, agglutinins have been found in the serum of the fetus. In some cases, it has been held that agglutinin may pass from the mother to the fetus, in others, that the presence of agglutinins arose from infection of the fetus itself.

Although the milk may be very rich in agglutinin, it is doubtful if the serum of a breast-fed child undergoes much increase in its agglutinating power because of the ingestion of the milk. The gastric and intestinal juices digest the agglutinin.

The origin of agglutinin in the animal body is not known. Inasmuch as the blood serum has the power to the greatest degree, it may be formed and excreted by the leucocytes; but this is not satisfactorily established.

Agglutination and Immunity.

One of the most interesting and important phenomena in the study of immunity is the so-called Pfeiffer reaction. An animal which has been made immune to cholera by repeated injections of the cholera organism, has the power of digesting or dissolving the cholera vibrio when the latter are placed in the fresh serum or in the peritoneal cavity of the immunized animal. Gruber and Durham were studying this phenomenon in the test tube when they first observed the agglutination reaction. It was found that the agglutinating property, as well as the bactericidal power, was the result of immunization. Inasmuch as the bactericidal power was associated with the immunity of the animal, the question naturally arose: Does this associated property, the agglutinating power, go hand in hand with the bactericidal power as an evidence of immunity?

Many observations have been made which show that the two are entirely distinct, and that they depend on different substances in the serum. The following are the important points involved:

1. The bactericidal power is destroyed at 56 C., while the agglutinating power resists a temperature of 62 C.
2. In certain cases it has been possible to cause the bacteria to absorb the agglutinin from the serum, leaving the bactericidal substance intact.
3. A serum may be bactericidal but not agglutinating.
4. During the course of natural or experimental typhoid fever or cholera the development of the agglutinating and bactericidal powers may not be parallel. In cholera, the agglutinating power may disappear soon, but the bactericidal power remains for a long time.
5. Micro-organisms which have been killed by a bactericidal serum may lose their virulence, agglutinated bacteria do not.
6. There is as yet no convincing evidence that bacteria are agglutinated in the body of an immune animal, the fluids of which apparently are able to kill the organism.

Besredka found an apparent relationship between agglutination and immunity; if typhoid bacilli were agglutinated before they were injected into the abdomen of a guinea-pig the animal would recover, but if they were not agglutinated death resulted. The explanation which others have offered for this loss if virulence is that the bacilli being agglutinated and immobilized are more readily taken up by the phagocytes; if phagocytosis is inhibited by some means the agglutinated organisms are found to be still virulent.

Koch has attempted to use the agglutination test with the tubercle bacillus as an index of the immunity of the individual against tuberculosis. This is not accepted as a reliable test for the immunity, but is perhaps a general index of the ability of the individual to form antibodies for this organism. This method was devised inasmuch as the bactericidal test with the serum and bacillus gave no positive information; the serum does not kill the tubercle bacillus.

Technic of the Agglutination Test.

One may use two methods of determining the agglutination of bacteria: 1. The macroscopic or naked eye observation of the clumping and sedimentation of a homogeneous suspension of the bacteria in test-tubes; 2, the microscopic observation of the clumping of the organisms when the latter are mixed with serum and mounted as a "hanging-drop" preparation.[2]

The Bacterial Suspension.

When the organism to be tested grows rapidly, it is the custom to use a young culture, one which has grown on an agar surface or in bouillon for from eighteen to twenty-four hours. Older cultures of the typhoid bacillus or of the cholera vibrio are agglutinated with more difficulty than a young culture. If the agar culture is used, the bacteria may be washed from the surface by pouring into the tube five or ten cubic centimeters of physiologic salt solution and shaking vigorously; the resulting suspension is then ready for use. For either the macroscopic or microscopic test it is absolutely essential to have a homogeneous suspension of the bacteria, in order to avoid misinterpretations which may be occasioned by the accidental or natural clumping of some of the organisms; the tubes should be shaken thoroughly before the emulsions are used. This uniformity of suspension is readily accomplished with such organisms as the typhoid bacillus and cholera vibrio, motile organisms; but when they grow in chains (streptococcus) or in coherent masses (diphtheria and tubercle bacilli) more violent measures must be resorted to. Daily shaking of a liquid culture of the diphtheria or tubercle bacillus is fairly effective, but the medium must be passed through a paper filter before it can be used safely; in this way the larger clumps are removed. Some investigators dry a large quantity of tubercle bacilli, grind them up thoroughly in an agate mortar and suspend the particles in salt solution; the fragmented condition of the organisms does not interfere with their participation in the agglutination reaction. One should have a uniform technic in preparing a bacterial emulsion in order to obtain as nearly as possible the same number of bacteria in a given volume of solution, on different occasions. For example, one may uniformly suspend a twenty-four-hour agar culture in ten cubic centimeters of salt solution. There is a certain quantitative relationship between the mass of bacteria to be agglutinated and the agglutinating power of the serum.

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[2] For a hanging-drop preparation it is necessary to have a slide with a saucer-shaped depression on one surface. A drop of the solution to be examined is mounted on a cover-glass, and the latter is then mounted, drop side down, over the depression and the edges of the cover-glass sealed with vaselin or paraffin. There is ample room for motile organisms to swim about in such a preparation, and the loss of motility incident to agglutination is readily observed.

To Obtain Serum.

To obtain serum for the test one may resort to blistering; place a cantharides plaster from one-half to three-fourths of an inch square on the abdominal skin, protect it with a dressing, and in about twelve hours remove the serum with a sterilized hypodermic syringe. Or, one may collect in a small test tube .5 to 1 c.c. of blood from the lobe of the ear or finger-tip, and draw off the serum after it has separated by clotting. It is the custom in some well-equipped laboratories to fill several U-shaped capillary tubes with blood from the lobe of the ear and to separate the blood from the serum at once by centrifugation. The custom of drying a few drops of blood on a coverglass or on filter paper, and of sending this preparation to a laboratory for the agglutination reaction, has been practiced quite extensively, and is a justifiable procedure when it is not possible to collect the pure serum. It has the disadvantage that the experimenter never knows exactly how much blood has been collected, and consequently can not perform the test with exact dilutions of the serum, the importance of which will be pointed out below. The red corpuscles and débris in such a preparation also interfere with the clearness of the field in microscopic examination, a difficulty which may be partly overcome by filtering the dissolved serum.

Serum Dilutions.

When only a small amount of serum is available, it is necessary to use the microscopic method. Normal human serum, when concentrated, and even when diluted to one in ten or higher, sometimes agglutinates the typhoid bacillus and some other organisms; the same serum, when diluted to one in forty or one in sixty, may not agglutinate. The serum of a typhoid patient, however, or of a typhoid convalescent rarely fails to agglutinate in these higher dilutions. It is generally held that a dilution of one in forty or fifty is sufficiently high to eliminate the possibility of agglutination by a normal serum, and sufficiently low to render the serums of all, or nearly all, typhoid patients agglutinating. The necessity for dilution of the serum is emphasized by the additional fact that infections with related organisms, as the colon bacillus, cause a slight increase in the agglutinating power for the typhoid bacillus along with a relatively large increase of colon agglutinins. A test with a low dilution of this colon serum might give a positive reaction with the typhoid bacillus and might lead to an incorrect interpretation: but if a dilution of one in forty were used, the non-agglutination of the typhoid bacillus would speak against a typhoid infection. This will be considered later under "group agglutination."

The "Loop" Measurement.

A convenient method of measuring small amounts of culture and serum is by means of a fine platinum wire which is bent at its tip to form an eyelet or "loop."[3] If one places one loop of serum into a small watch glass or hollow-ground slide, and adds nine loops of bouillon or of salt solution, a dilution of one in ten is reached. Five loops of this mixture with five of the diluent gives a dilution of one in twenty. One loop of the second dilution, to which is added one of the culture suspension, gives the desired dilution of one in forty. The last may be mixed directly on the cover-glass, and then inverted on a hollow-ground slide. It is readily seen how with even a minute quantity of serum, and at the same time, one may make the test with dilutions of one in ten, one in twenty, one in thirty, one in forty, etc., details which are necessary for a correctly performed test. It is important that in the different dilutions the same amount of bacterial emulsion be used.

In the macroscopic test, more serum is necessary, though the quantity need not be large, and the dilutions are made in test tubes of suitable size. One should always deal with definite quantities of the serum dilutions, and should always add the same amount of bacterial emulsion in the various tubes involved in a given test.

The Microscopic Reaction.

If agglutination occurs in the microscopic preparation described above, one sees, with the high power, in the course of from fifteen minutes to a half-hour, that two or more micro-organisms which come in contact have a tendency to remain in this position. In the case of a motile organism (typhoid) the movements may be exaggerated for a time. In the course of the next few hours, other cells are added to incipient groups and new groups originate. Motility becomes less and less and eventually ceases, in a characteristic reaction. The maximum change has taken place in from six to eight hours. Not less than four or five cells which are permanently agglutinated are considered indicative of a positive reaction; the test is most decisive when large masses are formed, so large that they are seen readily with a low magnification. A similar preparation to which no serum has been added should always be made, in order to eliminate spontaneous or "auto-agglutination" as a possible source of error.

The Macroscopic Reaction.

In the macroscopic reaction, the homogeneous cloudiness of the mixture of serum and emulsion becomes changed by the formation of smaller and larger flakes or clumps of bacteria, which in the course of a few hours sink to the bottom as a white precipitate leaving a clear overlying fluid. Here also a control tube, to which no serum has been added, should be preserved for comparison.

The body temperature, which may be obtained in a thermostat, facilitates the reaction.

The Agglutinin Unit.

The value of an agglutinating serum can not be expressed in units with the same exactness that is attained with diphtheria antitoxin. The limits of the reaction are not sufficiently definite; a given mass of bacteria has the power of absorbing varying amounts of the agglutinating substance, and it is impossible to obtain standard bacterial emulsions.

One may arbitrarily decide on a unit similar to that of Züpnik, in which a given volume of a serum dilution of one in forty, which is able to agglutinate a given mass of bacteria, is taken as the standard. If a similar amount of the serum in a dilution of 1 in 120 caused the agglutination of the same amount of bacteria, the serum would be called one of three-fold strength, etc.

The value of the agglutination reaction as a clinical diagnostic aid will be considered later in connection with the individual diseases.

A consideration of agglutination would be incomplete if one

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[3] Pfeiffer introduced a conventional "loop" of such dimensions that it held 2 milligrams of bacterial cells as taken from a solid surface, like that of agar.

Agglutination of Red Blood Corpuscles.

did not mention the phenomenon as it occurs with cells other than those of bacteria, in particular the red blood cells. The serums of many animals, as stated in a previous chapter, are toxic for the erythrocytes of some other species. In some instances, the corpuscles lose their hemoglobin under the influence of the serum; in other instances, or even with the same serums, the corpuscles are thrown into clumps and settle to the bottom of the test-tube, leaving a clear overlying fluid. The phenomenon, of course, may be followed under the microscope. The analogy with the bacterial agglutinins goes still further, in view of the fact that the formation of these "hemagglutinins" may be induced artificially in the body of an animal by the injection of erythrocytes from another species. An animal does not form agglutinins for its own cells (auto-agglutinins), and rarely, if ever, for the cells of another member of the same species (iso-agglutinins). What is said in the next chapter concerning the specificity of the bacterial agglutinins also holds for the hemagglutinins.

Plant Hemagglutinins.

There are some plant toxins, true toxins with a haptophorous and toxophorous structure, which agglutinate red blood cells: ricin, abrin, crotin, etc. Some of the earliest and most important work which Ehrlich has done in the field of immunity was accomplished with these plant toxins.

(*To be continued.*)

New Instrument

INSTRUMENT FOR STRETCHING THE INTESTINE TO FACILITATE INTESTINAL ANASTOMOSIS.

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These instruments were devised for the purpose of facilitating intestinal anastomosis (Fig. 1). I do not claim that they will fill every requirement or that they will be used to replace the elaborate methods now in use by our most skillful operators, but I have no doubt that they will be found useful by many a modest surgeon who is called on to do this kind of work, sometimes on short notice, and with the lack of skilled assistants.

The instrument (Fig. 1, No. 1) with serrated edges is for "end-to-end" work. The plates, when the instrument is closed, are directly opposite each other and the serrated edges do not become apparent until the instrument is opened by the sliding of one plate on the other (Fig. 2, No. 1). Each lateral half of the closed plates is introduced into the open end of the bowel to its fullest extent and then, the thumb being in the thumb ring and the index and middle fingers being in the finger rings, the instrument is opened to any desired extent by pulling the finger rings down toward the thumb ring and the bowel is put on the stretch. The thumbscrew then maintains this position. This stretching must not be beyond the physiologic limit, and when this has taken place the free edge of *each portion* of bowel is accurately adjusted and is brought in close apposition to the edge of its mate. Although the interrupted Lembert (deep), or the mattress suture seems most applicable, the continuous suture is just as easily applied. In either case three interrupted sutures can be applied very advantageously, one on the distal (*from the handle*) *point, and* one behind and one in front, each at about the middle point between the distal and proximal ends of the plates. These three sutures securely anchor the bowel in position and the contiguous margins can be sutured rapidly by *one of* several methods. The sutures can be tied or made taut in the continuous suture, to at least three-quarters of the entire circumference, and such is the stretching *capacity of* the bowel that this instrument, after being closed, can be taken out with but three or four sutures not tied. The grip of the thumbscrew is loosened by a turn to the left, the blades are closed, and the untied end of bowel nearest the handle is slid outward off the end of that margin of the closed plates, and finally the end of the plates is easily liberated. As soon as one corner is out the whole instrument comes away with perfect ease. The ease of delivery is augmented by the fact that the serrated edges are made to disappear by the closure of the instrument. The distance from the handle to the lateral margin is no greater than the width of the closed plates. It is an advantage to have these plates enter the bowel as far as possible, and, so long as the distance from handle to lateral edge does not exceed the width of the closed plates, no interference with delivery is found. After the delivery of the instrument, the few already inserted sutures, at former site of handle, are tightened and tied and the anastomosis is then completed.

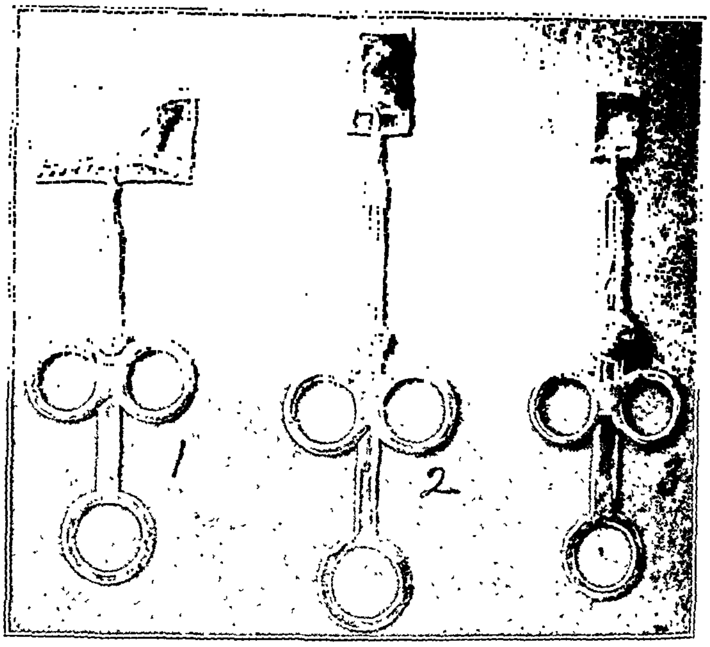

Figure 1.

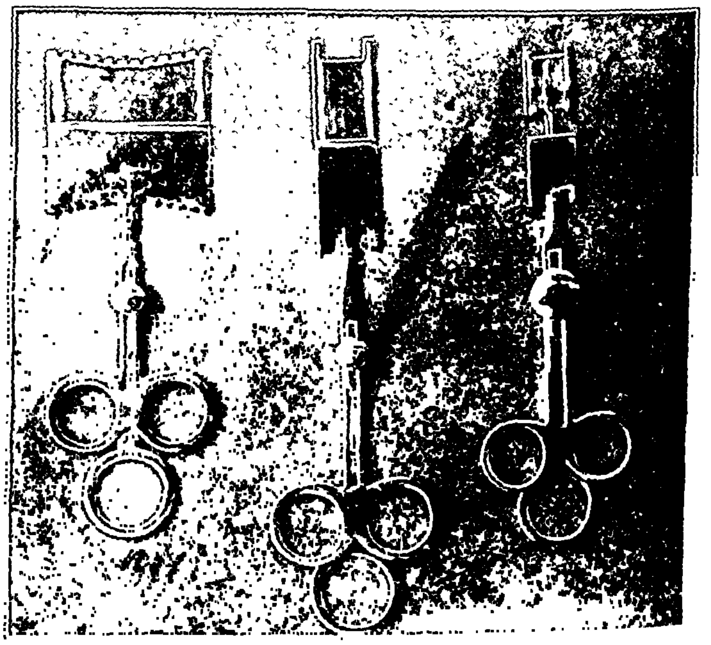

Figure 2.

After applying the three interrupted sutures to *hold the* contiguous edges of the bowel and to prevent them from slipping apart, the continuous suture can be *started at no great* distance from the handle, either in front or behind, and continued around to a point opposite. leaving room *for the delivery*, when a one-looped knot can be made to keep the suture taut to this point. Then the continuous suture can be continued around the handle to the point of starting, *but so* loosely that the closed plates can be readily extracted, and then the continuous suture can be tightened and tied (Fig. 3).

Another way is to apply interrupted sutures at infrequent intervals, so that six or eight at equidistant points would extend around the entire circumference; all but two near the handle are tied. Then a continuous Lembert suture is inserted slightly over or beyond this line, and either knotted as before or made loose near the handle, so that the closed plates may be extracted and the two interrupted and the continuous sutures tied in succession. This instrument permits the sutures to be applied with great accuracy, and when the bowel afterward contracts the sutures are closer together than they appeared to be when they were applied. In the case of the continuous suture, while the tension is lessened, the physiologic contraction does not make interspaces for leakage, because tissues during this contraction are bulked up more than enough to make up for this, and the healing is enhanced by the absence of pressure necrosis caused by tight suturing. In using this instrument it is not necessary to overstretch the bowel and no possible harm will come from its judicious use. Its action as a splint is fully performed well within the physiologic limit of stretching.

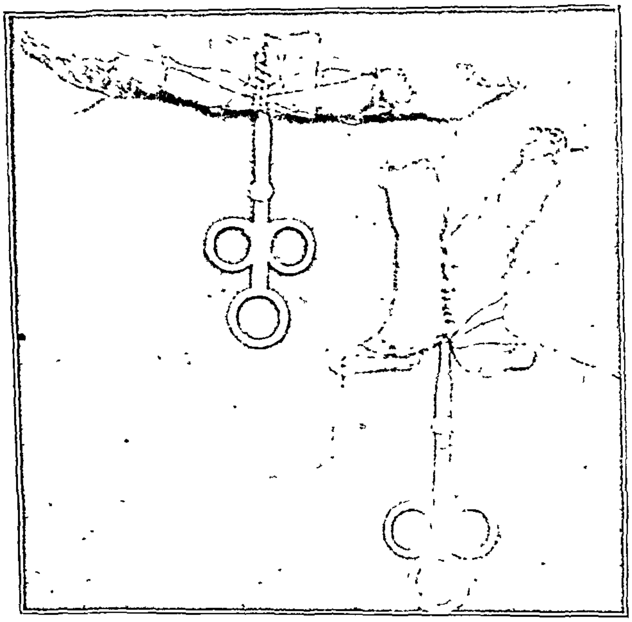
Figure 3.

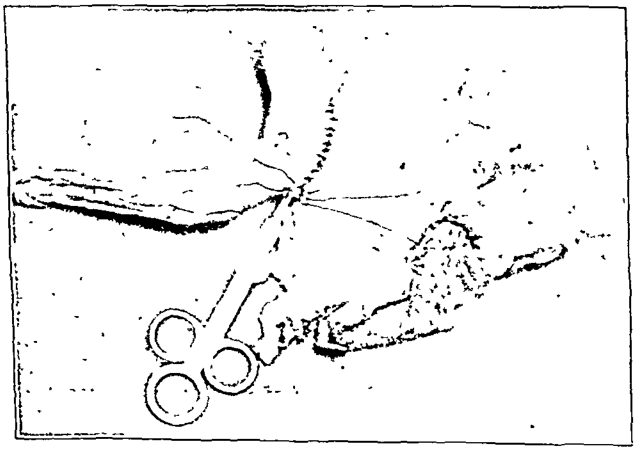
Figure 4.

Instrument No. 2 (Fig. 1, No. 2) is for lateral anastomosis and is on the same principle, except that the incised lines are put on the stretch instead of the lumen of the bowel, and very little stretching is here required, as the processes at the corners, when the instrument is open, are well within the bowel and the bowel can not slip off the plates unless the bowel should tear. When this instrument is closed the processes at the corners are covered and there are only straight edges. When the instrument is fully opened the plates still overlap a little, offering no chance for leakage and giving the bowel edge a firm support at every point (Fig. 2, No. 2).

Two incisions of equal length and longer than the length of the closed plates are made, and each lateral half of the closed plates is inserted into a corresponding opening in the bowel and the instrument is opened. The further working of the instrument, the method of application of the suture and delivery of the instrument has already been described.

Instrument No. 3 (Fig. 1, No. 3) is for gastroenterostomy. It is smaller and more easily delivered, and when it is fully opened (which may not be necessary) it allows of some separation of the adjacent margins of the blades. This gives a somewhat wider range of latitude in length of the incisions, without making the plates longer (Fig. 2, No. 3). There is the possibility of a little leakage at the place where the plates are apart, but this separation is only one-fourth of an inch (if the full extent of separation is used), and practically there will be no leakage. In this instrument very little room is required for delivery of the closed plates—not more than that taken up by two or three untied sutures (Fig. 4).

When these instruments are in operation there is complete hemostasis and the prevention of leakage. Their mechanism is extremely simple and the technic of their use is mastered without trouble.

New Appliance

A FRAME FOR EXAMINING EYE SKIAGRAMS.

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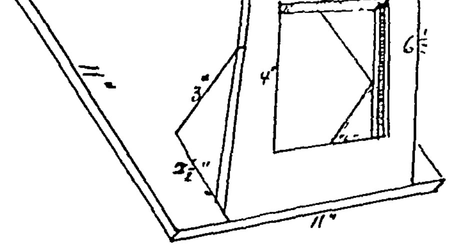
As I am frequently called on to make eye examinations and to localize foreign bodies in the eyeball, I found it necessary to devise some convenient method of holding the negatives made after the Sweet method, which would leave both hands free for using the instruments, and for making measurements, and which at the same time would give a good illumination: so I made the frame which is here illustrated. It is made of three-eighth inch poplar and is varnished to prevent warping.



The plate holder is set at an angle of about 45 degrees with the base, and the opening in it, of just the size to take a 4x5 negative, is rabbeted at the sides to prevent the plate from falling through.

The base is 11 inches square, and the plate holder is 6½ by 7½ inches.

When in use, a sheet of white paper, smooth but not glossy, is laid on the base to reflect light up through the negative; either light from a window or from an artificial source may be used. It is better to use paper than to paint the base white, as a painted surface is too apt to give a glare.

In making measurements I use calipers or compasses and a right-angled triangle made of celluloid.

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THE ELIMINATION OF INFECTIOUS MICROBES FROM THE DISEASED BODY.

Accurate knowledge of the ways in which the causative agents of infectious diseases are discharged from the infected body is of great practical value. The same means that carry pathogenic microbes into the outside world are also most important means of spreading infection. Hence the physician must know the modes of elimination in order to apply such measures as most quickly and certainly help to render patients with communicable diseases or their agents harmless to others. When we look at this elimination of pathogenic microbes a little more closely we find that there are at least two distinctly different forms of elimination: 1, Immediate elimination from the morbid focus by way of pathologic products; and 2, indirect elimination by means of the circulating blood through normal secretions and excretions.

In the case of immediate or direct elimination it is necessary that the seat of disease should communicate directly with the outside of the body. This is the case with all the diseases associated with surface inflammation or infection of mucous membranes as an essential manifestation. Here belong the infectious forms of conjunctivitis that cause many of our immigrants trouble; infections of the nasal mucous membranes, such as lepra, glanders, diphtheria; of the tonsils and pharynx, such as diphtheria, streptococcal and other forms of angina; of the laryngeal and bronchial (pulmonary) membranes, such as tuberculosis, pneumonia, influenza and whooping cough; of the intestinal tract, such as typhoid fever, dysentery and cholera; of the genitourinary passages, such as gonorrhea and tuberculosis. Here belong also local and general infections associated with lesions in the skin; of general diseases of this group we have smallpox, measles and scarlet fever. This enumeration by no means exhausts the list of diseases that are most favorably situated with respect to self-propagation; observe here the majority of the important infectious diseases.

Unquestionably sterilization of the mucous membranes (especially of the respiratory and oropharyngeal), and of the materials which they convey, is one of the greatest problems in connection with the prevention of infectious diseases. Disinfection of the discharges from the urinary and intestinal tracts is a simple matter compared to the disinfection of the sputum, visible and invisible, by practical and generally applicable methods in all those conditions in which it may contain infectious agents.

A word should be said, too, of the danger of autoinfection, local as well as general, in the process of elimination of pathogenic bacteria, especially from remotely situated localities. This phase of the subject is illustrated especially well by tuberculosis.

In the second form of microbic elimination, two conditions have to be met: the microbes must reach the general circulation and they must pass the epithelial barriers presented by glandular organs and mucous membranes. Now, infectious bacteria frequently reach the circulating blood, often, no doubt, in an accidental and more or less passive manner, but also as the result of inherent, invasive powers, illustrated in the bacillemia of typhoid fever and pest, in the pneumococcemia of pneumonia, and in the active bacteriemia in virulent, so-called septic infections.

What fate is in store for bacteria that enter the blood? In the first place, they may be destroyed by the bacteriolytic and phagocytic power of the blood; if but few in number they may be deposited like inorganic particles in the pulp of the spleen or in the bone marrow and gradually destroyed; and they may be eliminated in the urine and otherwise. It appears to be generally accepted that some form of lesion is necessary in the kidney in order that bacteria may pass from the blood to the urine. These lesions may be caused by the bacteria subsequently discharged in the urine. Be that as it may, no one questions the occurrence of bacterial elimination by way of the kidneys, and, as frequently emphasized in recent years, typhoid bacilli are so eliminated in at least 25 per cent. of the cases of typhoid fever, judging from the typhoid bacteriuria which thus becomes established. The dangers of spreading infection by this form of bacillary elimination are self-evident, and must be prevented by measures that are familiar to all intelligent physicians.

Bacteria are also eliminated from the circulation by way of the bile, and typhoid and tubercle bacilli, as well as other germs, are said to be demonstrable in the bile in a considerable proportion of cases of typhoid fever, general tuberculosis, etc. Experimentally, at least, certain bacteria are eliminated by the *intestinal* mucous membrane. As regards the elimination of bacteria from the blood by the glands of the skin, the investigations have given contradictory results.[1] Tubercle bacilli frequently appear in the milk of cows with but limited tuberculous lesions not necessarily located in the udder. Tubercle bacilli have been demonstrated in the milk in a woman with advanced phthisis. Finally, mention may be made of the fact that the unknown causative agent of rabies is eliminated freely in the secretions of the salivary glands, a fact that well explains the infectiousness of the bites of rabid animals.

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[1] See Gotschlich. Handbuch der path. Mikroorganismen, I, p. 163.

On the basis of this survey, it is urged on physicians that in all acute infectious diseases thorough disinfection of the urine, the feces, the sputum and the nasal discharges is fully indicated because any or all of these may contain infectious germs capable of carrying infection to other persons. We believe that this rule should be carried out more generally and more consistently than has been done heretofore.

LECITHIN—ITS POSSIBLE ROLE IN RADIOTHERAPY.

Lecithin is a substance of importance not only to the physiologic chemist but also to the pathologist and to the biologist. The more it is studied the more remarkable are the properties it manifests; and this is of additional interest in view of the fact that, from a chemical point of view at least, it is a comparatively simple body, being a combination of four substances, phosphoric acid, glycerin, a fatty acid and a base, cholin, all simple compounds whose chemical formulæ are well known. It is found in probably every cell in the animal body and undoubtedly plays a most important rôle in the metabolism of the cell, forming with albumins a combination known as lecithoproteids, from which it may easily be split off. It also furnishes the phosphorus in the synthesis of the important class of proteids known as the nucleins.

As a remarkable property of lecithin may be mentioned the very important fact pointed out by Kyes that this substance may act as a complement in hemolysis produced by cobra venom, thus playing a rôle analogous to that of a ferment. Again, Detre and Sellei[1] have shown that the hemolytic effect of corrosive sublimate is very materially reduced in the presence of lecithin. This is due to the formation of a harmless compound by the union of the sublimate and the lecithin. The poisonous action of the sublimate on cells, partly at least, may be explained in this manner. The lecithin of the cells enters into combination with the poison, thus preventing the building up of the nucleins which obtain their phosphorus from the lecithin group.

Another important contribution to the study of lecithin made recently by Werner[2] seems to indicate that it is to play an important part in radio-chemistry as applied to medicine. In studying the effect of radium on tissues, Werner, obtaining the suggestion from the works of Schwartz[3] and also of Schaper, who, from their study of eggs, showed that radium acts chiefly on lecithin, injected into the skin of animals a suspension in water of lecithin which had been exposed to radium rays for two or three days. Such lecithin he calls activated and with this he was able to produce exactly the same changes in tissues as is produced by the radium rays alone. The inactivated lecithin was without effect. He finds also that lecithin may be activated in the same way by the *x*-rays, this result being confirmed later by Exner. Treatment of the lecithin by heat (60°-70° C.), sodium chlorid, potassium hydrate, mineral acids, pepsin hydrochlorid and diffuse light failed to activate it. Of what this so-called activation consists has not yet been determined. It does not appear to be due to the splitting products resulting from the decomposition of lecithin, for activation and decomposition do not run parallel, and again, injections of the well-known splitting products of lecithin do not have the specific effect. The possibility of the replacement of *x*-ray and radium exposures by the local injection of activated lecithin is considered by Werner in a favorable light, but as yet no practical application has been made.

The question here involved is of great importance from a therapeutic standpoint, as it concerns the treatment of deep-seated malignant growths, inaccessible at present to the application of curative rays. It is to be hoped that some means may be devised whereby a selective action may be obtained on such growths. We have, therefore, a line of work suggested here which appears to be as promising as another line of work which also seeks for a selective action on tumor tissue, but in a very different manner, namely, serum therapy.

PROVIDE ANOTHER OUTLET.

For some years the profession has felt strongly that there are too many medical schools and too many ill equipped physicians. We all know that many schools are very "lame." We speak of them freely among ourselves, but few of us mention them in print for fear of hurting the feelings of some of our friends. The task of dealing with the problem has been left to the Council on Medical Education of the American Medical Association.

In the meantime we are all seeking remedies for this ill condition that is so detrimental to the welfare of the profession. Ohio suggested a remedy when it took the great step forward of passing a state law providing a minimum educational requirement for entrance to medical schools and gave its enforcement into the hands of the impartial public school system. New York has long had a similar regulation controlling entrance to medical colleges. Kentucky, on July 1, 1905, enters the same company. This method is excellent, in that it excludes the unfit at the beginning. The work, then, is well begun, and other states must soon fall in line or suffer the uncomfortable consequences.

But why have we too many medical schools? Can we not also tackle the problem simultaneously from the top? And, lastly, can we not provide some recompense to those who must lose teaching positions as schools are closed? The first question is not difficult to answer. As we enter the profession all of us desire fame and reputation, as well as full pocket-books. Fame comes slowly to him who confines himself to private practice. A hospital appointment and a professorship constitute alluring and promising shortcuts. Secondly can we

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[1] Wiener klin. Wochft., 1904, No. 49.

[2] Centlb. f. Chir., No. 43, 1904, also Deut. med. Wochft., No. 2, 1905, and The Journal, page 666.

[3] Pflüger's Archiv, 1903.

find a means to attain reputation that will attract us away from the professorships; and thirdly, that will furnish continued opportunity to those crowded out of places by the diminution in the number of schools? It is believed that these two questions can be answered in the affirmative.

In a large part of the United States the existing profession is sorely in need of postgraduate instruction to enable it to fulfill its whole duty to itself and to the community. One of the aims of our perfected organization was the facilitating of postgraduate study and instruction. Why not, then, arrange to combine these mutually satisfying needs? Let the schools and teachers soon to be without students set themselves to the splendid task of improving the attainments of the vast number of physicians who necessarily must live far from clinics and laboratories. Why not provide for systematic and semi-compulsory postgraduate training of the members of our organization? Having thus combined these two needs it will be found that fame is to be attained in teaching physicians just as formerly in instructing undergraduates. He who wants to teach will have just as good a chance as he ever had. The number of members in an overcrowded profession will be steadily reduced. The educational qualifications of the present generation of physicians will be materially improved. The only drawbacks lie in the friction incident to the initiation of the process. If the state medical associations take hold of the matter in proper spirit, the difficulties will soon fade. The proposal is far from being chimerical, and it is confidently believed that the next few years will somewhere witness a trial of this method of disposing of the most vexed problem that demands solution at the hands of the organized profession.

THE CEREBROSPINAL MENINGITIS EPIDEMIC.

Dr. Councilman's paper in this issue is a timely one on account of the present epidemic aggravation of cerebrospinal meningitis in portions of the Atlantic seaboard states. The principal features of the disease were editorially noticed in The Journal March 18, but Councilman's paper brings out more prominently certain specially significant points bearing on the present epidemic. It is evident that it is not exactly of recent origin; on the contrary, there has been a notable frequency of the disease and a heightened mortality from this cause in New York and southern New England for a year or more past. The present mortality, however, of 70 or 80 a week in New York City, as reported in the press dispatches, is a formidable one and indicates a very serious prevalence or virulence of the infection. The opportunity is specially favorable for investigating certain questions relating to the disorder and, considering the evident seriousness of the situation, such an investigation as has been begun is imperative. Councilman shows that the meningococcus, like the pneumococcus, is always with us and that the reason for its apparently increased virulence at certain times is, as in the case of the other, still a problem for the pathologists. The mortality in different epidemics varies very greatly and therefore is not by any means a true index of the actual prevalence of the infection. It is even possible that there may be a certain degree of morbidity due to the meningococcus that is not recognized as such, and that, as in the case of scarlet fever, there may be cases in which the after consequences are the most noticeable symptoms. This may be the case during the prevalence of an epidemic and a retrospective diagnosis based on them and on the general prevalence of the disease be the only one possible. Almost universally, however, the cerebrospinal system is affected and the other possibility is offered simply as a suggestion. The facts that the great majority of the sporadic cases of primary meningitis are due to Weichselbaum's diplococcus and that it has been found in the nasal secretions of normal individuals indicate the necessity of more general bacteriologic diagnosis in all suspicious cases. Cerebrospinal meningitis is a very serious matter when it occurs as an epidemic and though the danger of direct infection has been considered slight, recent developments have somewhat altered this opinion.

We trust that the New York health authorities and the pathologic research institutions will leave no stone unturned to settle the questions of the cause of the apparently aggravated virulence of the germ at the present time and its relations to the general morbidity from the infection in whatever form it may be manifested. There should be also a careful study of sporadic cases in other parts of the country where the disorder does not exist in an epidemic form and, as Councilman suggests, even climatic conditions should not be neglected. How an organism of such low vitality as that producing cerebrospinal meningitis can exist between epidemics without giving more abundant pathologic evidence of its existence is a matter worthy of investigation.

ISTHMIAN SANITATION—THE COMMISSION'S REJOINDER.

Shortly after the publication of Dr. Reed's report on "Isthmian Sanitation," March 11, we wrote to the Isthmian Canal Commission, tendering the columns of The Journal for the publication of their reply, which, consequently, appears in this issue. A copy of the reply in proof was forwarded to Dr. Reed with a proffer of such space as he might desire for a rejoinder. To this tender we have received the following reply:

"Cincinnati, March 28, 1905.

"Accept my thanks for your tender of The Journal for a rejoinder to the commission's reply to my report. It seems to me, however, that the commission has made so many specific admissions fatal to its own contention and confirmatory of my charges, and by labored explanation has so endeavored to obscure the real issue in other particulars, that there is but little left to say. I shall, however, put that little into the form of a supplementary communication to the Secretary of War, to whom, of course, must be left the matter of its subsequent publication.

"In this same connection I wish to state that I have profound respect for the discipline and for the proprieties of the various departments of the government. I consequently recognize that, *from this viewpoint alone*, the publication of my report at my instance was a mistake. It was, however, a mistake based on a misunderstanding, for which I alone was responsible and for which I apologize to the Secretary of War and for which, furthermore, I herewith apologize to the medical profession.

"With cordial appreciation and approval of your policy, by which the commission is given as free and open a hearing as was accorded to me, and with the hope that the medical profession will accord a careful reading to the commission's reply, I am, very sincerely,

"CHAS. A. L. REED."

Whatever may be the character of Dr. Reed's rejoinder and whether it is ever submitted for publication or not, the medical profession has now been furnished with material on which to form a reasonable and accurate judgment of the situation at the isthmus, for which thanks are due to Dr. Reed. So far as his report, already published, is concerned, every one recognized that it embraced a series of facts and incidents that were recounted to support one important if not vital charge, namely, that the sanitary department at the isthmus is unduly subordinated to other departments of the isthmian government. Many of the incidents are intrinsically trivial and it is possible that Dr. Reed may have been misled in some minor matters—as any one, however careful, might easily have been misled—by the statements of others on whom, naturally, he had to rely for information. Whether or not Dr. Reed was thus misled will probably appear from his rejoinder, based, no doubt, on documentary evidence, some of which he sent with his report to this office, but which, for want of space, was not used at the time.

The one general charge, the important one of improper subordination of the sanitary department, remains, however, to be considered. This, too, is denied by the commission. But, unfortunately for the commission, it fails to disprove the existence of the law which it enacted by which this subordination is effected and, still more unfortunately for the commission, it gives, as will be seen from its report, a dozen or more instances in which it did overrule the recommendations of the sanitary department, thus demonstrating the truthfulness and justice of Reed's contention.

If the rest of the denials are no more conclusive than this one, Dr. Reed may rest for his vindication, if any were needed, on the document that we publish to-day. But, fortunately, Dr. Reed requires no vindication. He has worked too long, too zealously and too disinterestedly for medical science and for the medical profession, and his report now under criticism was too distinctly prompted by interest in the public welfare for him to be discredited by the unsupported denial of a commission that is struggling to avoid summary dismissal.

TRUTH AND POETRY CONCERNING URIC ACID.

XII.

The suggestion of Wollaston[1] that in some way or another uric acid is definitely related to the pathology of gout followed, as we have seen, his demonstration of the uratic nature of gouty deposits. It received unexpectedly great support about the middle of the last century through certain observations of Garrod,[2] which led that physician to conclude that the blood of gouty patients contains an abnormally large amount of uric acid.

Garrod introduced what is known as the "thread test" for uric acid in the blood. To a little blood collected in a watchglass is added some dilute acetic acid; a linen thread is immersed in the mixture and the whole allowed to stand for twenty-four hours, evaporation being prevented. If the uric acid in the blood is increased, crystals of uric acid separate out, according to Garrod, adhere to the thread and can be recognized under the microscope. The results of the application of this thread test led Garrod to the belief that the quantity of uric acid in the blood is always increased in gout, not only during the attacks, but before them and in the intervals between attacks. Indeed, his findings indicated that the increase is greatest shortly before an attack, and he ventured the opinion that this increase is directly responsible for the attack.

These remarkable observations of Garrod naturally excited great interest and a large number of control observations began to be made by various clinicians. Prominent among those who have confirmed Garrod's findings, almost in their entirety, may be mentioned Bence-Jones, Ranke, Charcot and more recently Sir Dyce Duckworth. The results of other investigators have been confirmatory of Garrod's work only in part; thus Salomon found an increase of uric acid in the blood in the acute attacks only, not before or after them, while Cantani supported Garrod as far as chronic gout is concerned, but agreed with Salomon as to the findings in acute gout.

A strong opponent of Garrod's view appeared in Emil Pfeiffer,[3] who urged that a positive finding with Garrod's test does not necessarily indicate an increase of uric acid in the blood, but rather that the blood at the time contains its uric acid in some form which dissolves with difficulty; in other words, that the substance exists in the blood as some "easily separable" modification. We know now from the chemical and physical studies of uric acid which have since been made that Pfeiffer's objection is not valid, for when uric acid separates out of solution this is almost always due not to alterations in the chemical nature of the uric acid but to alterations in the conditions of solubility of the substance.

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[1] Wollaston: Gouty and Urinary Concretions. Phil. Tr., Lond., vol. ii, 1797, p. 386.

[2] Garrod, A. F.: Researches on Gout. Medicochir. Tr., vol. xxv, 1848, p. 83; vol. xxxvii, 1854, p. 49.

[3] Pfeiffer, E.: Natur und Behandlung der Gicht. Verhandl. des viii Kongr. f. inn. Med., 1889, 166.

Obviously, to make Garrod's findings more conclusive, it was desirable that they should be controlled by exact quantitative estimations of the uric acid in the blood. Garrod and Salomon both attempted this, but unfortunately made their determinations with the inaccurate method of Heintz. Studies with more exact methods were made by Klemperer and later by Strauss, but the best research of all in this particular field is that of Magnus-Levy,[4] published in 1899. The latter made accurate determinations of the uric acid in the blood in no less than 17 cases by gravimetric analysis, using the reliable Ludwig-Salkowski method. His research has taught us that the uric acid of the blood is always increased in gout; there is, however, no constant increase just before an attack in contrast with the amount present in the free intervals such as Garrod thought he could demonstrate.

The most superficial and unreliable work recorded on the amount of uric acid in the blood in gout is, perhaps, that of Haig. Using a method which rests on a pure assumption and which has no well-founded chemical basis, he has drawn, as Luff and others have shown, wholly unwarrantable conclusions. It is a pity that so faulty a worker should have presented his views in so convincing a manner as to make their acceptance, by those who are unable to refute his premises, a foregone conclusion.

If we have good ground, and we think we have, for believing that the uric acid of the blood is increased in amount in gout, the question naturally arises, is such an increase pathognomonic for gout or is it met with also in other conditions? The pathognomonicity of the symptom must be denied, for an increase of uric acid in the blood is found in nephritis (Garrod[5]), in diseases in which the red blood corpuscles are injured (v. Jaksch), and, temporarily, in health after nuclein-feeding (Weintraud). These facts have led many to think that perhaps after all the increase of the uric acid in the blood may not stand in any very definite relation to the main symptoms of gout. Some even go so far as to hold that the increase is to be regarded as merely accidental, a view recently supported with some vigor by Zagari.[6] Others, among them Cantani and von Noorden, suggest that the increase of uric acid in the blood is not the cause of gout, but is due rather to the partial solution and absorption into the blood of the gouty deposits. Still, right or wrong, the prevalent belief, we think, is that an increase of uric acid in the blood in gout is, in the main, responsible for the clinical symptoms. Those who hold to this view, however, admit that the increase alone does not suffice to explain gout, and they conceive of certain alterations in the blood or tissues, or of external injuries, as accessory etiologic factors.

In any case, we stand before the fact that the uric acid of the blood is increased in gout, and it must therefore be important to search for the cause of such increase. One might think *a priori* of an increased uric-acid formation, of diminished uric-acid excretion, of lessened destruction in the body of uric acid once formed, or, finally, of a combination of these different factors. An epitomizing of the actual work which has been done in this connection will be our next task.

AN APPEAL TO NEW YORK.

In our news columns is an item in regard to the osteopathic bill in the New York legislature. It is evident that unless the profession wakes up New York will be afflicted with this ridiculous measure. Without a shadow of doubt, the influence of the physicians of New York state is far greater than is that of the osteopaths, but the osteopaths are active and are working day and night and are bringing to bear all the influence they can control to carry their measure. The committees representing the New York State Medical Association and the Medical Society of the State of New York are doing what they can, but, as we intimated two weeks ago, they are not backed by a united profession. Now is the time for the individual physician to do his part by either writing or telegraphing his representative at Albany, protesting against the passage of the osteopathic bill. If one in ten of the physicians in New York State will do this, and will take the trouble to bring their influence to bear on their representatives in this matter, the bill will be defeated.

MALPRACTICE INSURANCE AND MEDICAL DEFENSE.

It appears, according to a recent opinion of the attorney general of Iowa, that physicians can not take out insurance in that state against malpractice suits. The Travelers' Insurance Company of Hartford is issuing such policies, assuming liability for fixed sums of money which may be included in the costs and damages in case of such litigation. It applied for admission in Iowa but was refused, as far as this form of policy is concerned. The theory on which the opinion is based seems to be that it is contrary to public policy to allow a physician to be relieved from any of the consequences of possible mistake in treatment of a patient. Considering the fact that probably nine-tenths of all malpractice suits are pure blackmail, instigated by quacks and foraging lawyers, the finding seems to be a peculiar one. If justice were done in all cases few of these suits would come to anything, but the fact is that juries are specially fallible in this particular regard and are apt to take altogether too little account of the many important factors that may mar the success of any kind of medical or surgical treatment. Hence some of the cases of gross injustice which are familiar to all of us. The remedy for the state of affairs left as a result of this opinion given out in Iowa will be in the better organization and co-operation of the reputable members of the profession. The attorney general can hardly use the same arguments against medical defense provisions in the state and local medical societies.

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[4] Magnus-Levy, A.: Ueber Gicht; klinische Beobachtungen, chemische Blutuntersuchungen, und Stoffwechselversuche. Zeits. f. klin. Med., vol. xxxvi, 1899, p. 353.

[5] Confirmed by Kam and v. Jaksch.

[6] Zagari, G.: Il bilancio organico di un gottoso durante e fuori l'accesso. Napoli, 1898; also Zagari, G. e D. Pace, La genesi dell' acido urico e la gotta. Napoli, 1897.

THE DANGERS OF SELF-DRUGGING.

Mr. Edward Bok's latest installment of his campaign against the abuse of patent medicines is in the April *Ladies' Home Journal.* He brings out three chief points. The first is to emphasize that the manufacture of hypochondriacs is a regular business—an intentional process—carried on by the diabolical advertisements of the patent medicine man. The repeated and insistent suggestion that a certain slight ache or pain is the symptom of something serious makes the reader dwell on his imaginable ailment until he buys a bottle of the remedy. In the second place Mr. Bok explains how some testimonials are obtained for patent medicines. In the case cited the testimonials were wholly lies, the authors not having used the medicine. The third point which Mr. Bok makes is that even if the medicine possessed merit, and even if the testimonials were genuine, it would not justify the use of the medicine without the physician's advice, because the patient is not competent to make a diagnosis on the similarity of symptoms, which may be very deceptive. Mr. Bok is very clear and straightforward: at the same time he is on safe and conservative ground. His article for this month is remarkably free from doubtful or objectionable statements and is, altogether, a strong and convincing plea for the exercise of ordinary good judgment before succumbing to the almost universal passion for self-medication that is developed and fostered by the flaring and suggestive advertisements in the daily papers. Much of what Mr. Bok has to say will apply to the proprietary secret remedies; substitute these for his "patent medicines" and unthinking physicians for unthinking laity, and it will not be far wrong. Mr. Bok is to be congratulated on his courage in persisting in his fight in spite of the opposition of certain newspapers, whose editors evidently are fearful that in proportion as his propaganda is successful will one of their great sources of income be cut down.

MANUEL GARCIA AND THE LARYNGOSCOPE.

On March 17, the London Laryngological Society celebrated the one hundredth birthday of Manual Garcia, a well-known Spanish singing teacher in London, and also the fiftieth birthday of the laryngoscope. Garcia, though not a physician, became the founder of a new and important specialty in medicine by his discovery of the laryngoscope. In March, 1855, he published in the Proceedings of the Royal Society[1] his "Observations on the Human Voice," based, to a large extent, on the introduction into his own throat of a mirror, which he illuminated with direct sunlight at the same time as he observed the movements of his own vocal cords in a second mirror. This was the foundation of modern laryngology. Two years later the celebrated Tuerck of Vienna was studying diseases of the larynx by means of the laryngoscope, studies that culminated in his great work on laryngoscopic pathology and therapy. In the meantime the younger Czermak was doing pioneer work for laryngology in Leipzig, and in 1859 he announced the demonstration of posterior rhinoscopy. Thus were diseases of the nose and throat made accessible to direct inspection, diagnosis and treatment. The discovery of cocain, in 1884, greatly promoted the development of the new specialty which was founded as the result of a singing master's intelligent interest in voice production. No wonder that the rare anniversary on March 17 brought Garcia the congratulations and gratitude of physicians the world over.

SOME RECENT LEGISLATION.

Some of the enactments of recent legislatures show evidence of good work on the part of the legislators. Oregon, in which state members of the association are particularly interested because of the approaching session to be held at Portland, seems to be progressive. It has passed an indeterminate sentence law, has authorized probation of persons not previously convicted of felony, and has authorized the establishment of a juvenile court in districts of 100.000 or more inhabitants. This law, further, forbids the commitment to jail of children under 12 years of age and provides for a board of visitors to visit institutions and associations which receive children under the provisions of this act. A woman's reformatory has been authorized by the New Jersey senate. The California legislature passed an act repealing the compulsory vaccination law, but the watchful governor vetoed it, and the legislature came to its senses and rejected the proposal to pass the bill over the veto, by a vote of 23 to 3. The message of the governor, who, by the way, is a physician, is a cogent, readable brief on the subject of vaccination. North Carolina, in its recent legislative session, took advanced ground on the questions of child labor, divorce and vagrancy. The *Outlook* states that "the most liberal provisions ever adopted were made by the North Carolina legislature for the care of the insane and other unfortunates . . . and for the public schools." While these matters are sociologic and only indirectly related to medicine, yet physicians, more than any other class, are interested in them and in the progress being made.

Medical News

ALABAMA.

Accident.—Dr. Jesse E. Robins, city physician of Ensley, was seriously injured in a runaway accident, March 4.

Fire Losses.—Dr. Lucian A. Spencer, Bessemer, suffered a loss of $10.000 in the destruction of his house by fire. He carried only $2,500 insurance.——The offices of Drs. Byron T. and Orion T. Dozier, Birmingham, were destroyed by fire. The loss was $7,500; the insurance, $1.000.

Personal.—Dr. William C. Wheeler, Huntsville, has been re-elected physician of the city and of Madison County.——Dr. Robert B. Harkness, Birmingham, has been elected city physician and physician of Jefferson County.——Dr. E. P. Lacey, Bessemer, has been critically ill with pneumonia.

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[1] Vol. vii, p. 399.

CALIFORNIA.

Hospital Opened.—The Sisters' Hospital, Chico, was opened to the public March 1.

Hospital Incorporated.—The St. Francis Hospital Association has been incorporated at San Francisco with a capital stock of $75,000.

February Deaths.—During February 1,178 deaths were reported, equivalent to an annual mortality of 15.68 per 1,000. Tuberculosis caused 210 deaths; heart diseases, 141; pneumonia, 119; cancer, 47, and cerebrospinal meningitis, 19.

Personal.—Dr. John Gallwey and wife, San Francisco, started for Europe, March 16.——Dr. Ferdinand Stabel, Redding, has been made physician and health officer of Shasta County.——Dr. Claeburne W. Evans, Modesto, has been re-elected physician of Stanislaus County.

Los Angeles Illegal Practitioners Sentenced.—Mrs. S. J. Bridge, "cancer specialist," pleaded guilty and was fined $100. ——"Dr." William S. Lair has been found guilty of fraud.——Ira Guilford, "magnetic healer," was fined $100, March 10. ——Henry Nanzita, "Oriental doctor," was fined $350, March 11, and paid his fine.——"Dr." C. C. Hewitt pleaded guilty and was fined $100.

COLORADO.

Personal.—Dr. J. Ernest Meiere, Cripple Creek, who has been seriously ill with pneumonia and erysipelas at the Sisters' Hospital, is now convalescent.

February Mortality.—During February 881 deaths were reported in the state, equivalent to an annual mortality of 19.97 per 1,000. Fourteen deaths were reported from typhoid fever, *6 from diphtheria, 5 from scarlet fever, and smallpox caused one death.*

Contagious Diseases.—During February there were reported to the State Board of Health 133 cases of scarlet fever, 73 cases of smallpox, 62 cases of diphtheria and 21 cases of typhoid fever. Compared with the previous month, February shows an increase of 56 cases of scarlet fever and 12 cases of smallpox, and a decrease of 55 cases of typhoid fever and 25 cases of diphtheria.

Defective Vision and Hearing of School Children.—Results of a recent investigation conducted under the direction of the State Board of Health show that 15.66 per cent. of the 14,403 school children examined have defective vision, and that 2.7 per cent. have defective hearing. Of the defective vision subjects, 6 per cent. wore glasses, 8 children were totally blind in one eye, and 1 was nearly blind in both eyes.

DISTRICT OF COLUMBIA.

Quarantine Station Accepted.—The district commissioners have accepted the new smallpox quarantine station near the jail. The building is a two-story frame structure and contains 40 rooms.

License Revoked.—Dr. Sigmund A. Czarra, charged by the board of medical supervisors with unprofessional conduct and with circulating improper literature, was found guilty and his license was revoked. This is the second time the board has had Dr. Czarra before it. Its findings in the first instance were reversed by the Court of Appeals.

Navy Medical School Commencement.—The annual graduation exercises of the Navy Medical School were held in the National Museum March 25. A class of 23 was graduated and President Roosevelt delivered the principal address and presented the diplomas. Addresses were also made by Dr. William H. Welch, Baltimore, and Medical Director R. A. Marmion, U. S. Navy, president of the faculty.

Would Drop Word "Insane."—In the annual report of the Government Hospital for the Insane the superintendent suggests that the name "Government Hospital for the Insane" have the objectionable word "Insane" left off, and that the institution be called merely the "Government Hospital." During the year 3,135 patients were under treatment; 643 were discharged and 243 died. Of the patients under treatment from the services 1,111, or about 82.53 per cent., were from the Army.

FLORIDA.

Insane Hospital Changes.—Dr. Robert L. Goodbred, Mayo, has been appointed managing physician of the Florida Hospital for the Insane, Chattahoochee, vice Dr. V. H. Gwinn, resigned.——Dr. James H. Randolph, Tallahassee, has been appointed assistant physician, vice Dr. Eldred C. Christian, resigned.

Personal.—Dr. James L. Niblack, Lake City, has been appointed a member of the board of medical examiners for the Third district, vice Dr. Joseph A. Townsend, Lake City, deceased.——Dr. Washington Kilmer, Orlando, has been appointed registrar for Orange County.——Dr. Joseph N. Fogarty, Key West, has been made a member of the board of medical examiners in and for the Third Judicial district.——Dr. Stephen M. Gonzalez, Pensacola, has been made special physician for Escambia County, and Dr. Daniel W. McMillan, Pensacola, has been re-elected physician of the same county.——Dr. James G. Baskin, Dunnellon, has been selected as state senator to succeed Hon. C. M. Brown.

GEORGIA.

Personal.—Dr. William Bradford, Cedartown, has been appointed private secretary to Congressman Gordon Lee.

Throat Cut in "Difficulty."—In a dispute over the ethics of keeping in the little girl of Dr. W. D. Williams, Cataula, after school hours, the husband of the teacher drew his knife and cut the physician's throat. The injury was serious, but Dr. Williams is expected to recover.

Malpractice Suit Fails.—In the suit of John M. Casey, Stillmore, against Drs. Leonidas P. Lane of that place, and G. L. Smith, Swainsboro, in which he claimed $20,000 damage for the alleged negligence, incompetence and lack of skill of these physicians in treating compound comminuted fracture of both legs, the jury found for the defendants.

ILLINOIS.

Personal.—Dr. William H. Fitch, Rockford, has been appointed surgeon of the new I., I. and M. Railway.

Watch Factory Hospital.—The Elgin watch factory has installed an emergency hospital with two wards and an operating room, on the second floor of its new main building.

Munificent Bequest to Hospital.—By the will of Abram Brokaw, who died a few days ago in Bloomington, $100,000 in cash, farms valued at $50,000, and released debts amounting to $15,000, are bequeathed to the Brokaw Hospital.

Progress of Senate Bills.—The optometry bill (Senate 237), reported defunct, seems to have taken a new lease of life, for it passed the senate March 16. The practice of optometry is defined to be the employment of any means other than the use of drugs for the measurement of the power of vision and the adaptation of lenses for the aid thereof. The provisions of the act shall not apply to physicians duly licensed to practice medicine under the laws of this state, nor to persons who sell spectacles or eyeglasses on prescription from any duly qualified optometrist or physician, nor to dealers in spectacles and eyeglasses, who neither practice nor profess to practice optometry. *In accordance with the decision of the Supreme Court of Illinois in the case of People vs. Charles L. Smith* (208 Ill. 31), *opinion* filed Feb. 17, 1904, a person who measures the powers of vision and adapts lenses is not practicing medicine as defined by the Illinois statutes. This bill is still in the judiciary committee of the house. There will be no hearing on this bill until the second week in April, if then. The bill is being opposed by a committee appointed by the Council of the Chicago Medical Society, acting in conjunction with the secretary of the State Board of Health.——The same forces are opposing the osteopathic bills (Senate 169 and 392. See The Journal, March 18). It is believed that these bills will not pass. A new bill *(Senate 311)* creating a state board of osteopathic examiners and providing for the issuance of osteopathic physicians' certificates which permit the practice of osteopathy, obstetrics and surgery, has been introduced in the senate and referred to the committee on judiciary.——*The consumptive sanitarium bill* (House 330) is still in the *hands of the appropriation committee.* The prospects for its passage with a reduced appropriation are good.——Senate bill 158, placing physicians in Cook County service under civil service, has passed the senate, as has Senate 271 for the regulation of scientific experiments on human beings and animals.——House bill 182, providing for the treatment of persons afflicted with rabies, under the direction of the State Board of Health, has passed the house.——The epileptic colony bill is dead.——The registered nurses' bill (Senate 225) has passed the senate.——House bill No. 577, which gives to the State Board of Health sanitary supervision over lodging-houses in cities of 100.000 inhabitants or more, is in the judiciary committee of the house of representatives.

Chicago.

Fined for Illegal Practice.—"Dr." Frederick L. Orsinger on March 24 was fined $200 for practicing medicine without a license. The prosecution was undertaken by the State Board of Health.

Davis Tablet Unveiled.—The memorial tablet for the late Dr. N. S. Davis was unveiled in Davis Hall of the Northwestern University Medical School, March 24. Addresses were made by Drs. George W. Webster, E. Wyllys Andrews, Emilius C. Dudley, W. O. Krohn and Dean Holgate of the university.

Deaths of the Week.—During the week ended March 25, 581 deaths were reported, equivalent to an annual mortality of 15.21 per 1,000. Pneumonia still leads death causes with 106; other principal causes are, consumption, 81; heart disease and nephritis, each 37; violence, 32, and cancer and nervous diseases, each 27.

Personal.—Dr. Roswell Park, Buffalo, was the guest of honor at a dinner March 25, when he described the researches for the cure of cancer which are being carried on under his direction. ——Dr. Horace M. Starkey announces that owing to ill health he will retire from practice in Chicago June 1, and will resume at Rockford October 1.

Smallpox Rampant.—During the past week 22 patients were sent to the Isolation Hospital. Of these none had been revacinated, and 17 had never been vaccinated. Since January 1 232 cases have been discovered, and 34 patients have died, a mortality of 14.6 per cent. Four cases were discovered March 26 at a "Holiness" home, and one infant in a gypsy camp died from the disease.

Antitoxin and Diphtheria Mortality.—Ten years ago the antitoxin treatment of diphtheria was begun by the department. During the previous ten years ended Dec. 31, 1894, there had been 13,566 deaths from diphtheria reported—a yearly average of 1,356 and a proportion of 13.53 deaths to 10,000. During the ten years ended Dec. 31, 1904, there were only 8,129 such deaths reported—a yearly average of 812 and a proportion of 4.88 to 10,000.

INDIANA.

Isolation Hospital Burns.—The Allen County Isolation Hospital, Fort Wayne, was burned March 8, entailing a loss of $1,500. The two patients were removed without casualty.

Sanatorium Reopened.—In honor of the reopening of the Mary Jane Gilbert Memorial Sanatorium, Evansville, after it had been closed several months to be remodeled, receptions to the profession and the people were held March 8 and 9 by Drs. Wiliam H. Gilbert and George F. Greenleaf.

Injured and Operated.—Dr. William H. Mills, Boonville, was seriously injured in a runaway accident.——Dr. William H. Myers, Fort Wayne, was operated on for strangulated hernia, March 11.——Dr. Thompson R. Brady, Wabash, was seriously injured when his horse became frightened and backed off a bridge into the bed of a creek, south of town.

Epileptic Village Act Signed.—The governor has signed the Purviance bill providing for an epileptic village in Indiana and, the measure having an emergency clause, is now a law. Within ninety days the governor will appoint a board of three commissioners to select a location for the village. The bill carries an apropriation of $150,000. Persons entitled to admission may be committed to the village by the circuit judges of the various counties after each applicant has been passed on and recommended by two medical examiners appointed by the judge. The expense of clothing the patient and the traveling and incidental expenses are to be paid by the county, if not by the relatives of the patient, in the same manner as is now provided for the commitment of insane persons.

February Morbidity and Mortality.—The most prevalent malady was influenza. The order of disease prevalence was as follows: Influenza, pneumonia, tonsillitis, bronchitis, rheumatism, scarlet fever, pleuritis, typhoid fever, erysipelas, diarrhea, intermittent fever, diphtheria, inflammation of the bowels, smallpox, whooping cough, measles, puerperal fever, typhomalarial fever, cholera morbus, dysentery, cerebrospinal meningitis, cholera infantum. There were 381 cases of smallpox reported from 35 counties, with 8 deaths. In the preceding month there were 238 cases from 27 counties, with 7 deaths, and in the corresponding month of last year 408 cases from 34 counties, with 5 deaths. This shows a decrease in cases with an increase in deaths. Deaths from tuberculosis numbered 410, 29 of them being other forms than pulmonary. All but four counties in the state report deaths from this cause. The rate for the pulmonary form was 187 per 100,000. In the same month last year there were 365 deaths, a rate of 182.7. Typhoid fever was reported from 42 counties; 202 cases were reported, with 32 deaths. In the preceding month 273 cases were reported, with 50 deaths, and in the corresponding month last year 268 cases and 60 deaths. The pneumonia deaths numbered 741; in the preceding month, 558, and in the corresponding month last year, 711 deaths. Deaths by violence numbered 127, 28 suicides and 99 accidental. Of the 28 suicides 11 were females and 17 males. The methods chosen were: Hanging, 5; drowning, 1; gunshots, 12; cutting throat, 1; chloroform, 1; opium, 3, and corrosive sublimate, 5. The total number of deaths reported was 3,723, equivalent to an annual rate of 18.2 per 1,000. In the preceding month the total was 3,309, or 14.7 per 1,000, and in the corresponding month of last year, 3,477, a rate of 16.8 per 1,000. Deaths from important causes were; Consumption, 381, of these 29 being other forms than pulmonary; typhoid, 32; diphtheria, 26; scarlet fever, 11; measles, 2; whooping cough, 11; pneumonia, 73; diarrheal diseases, 13; cerebrospinal meningitis, 40; influenza, 229; puerperal fever, 7; cancer, 101; violence, 122, and smallpox, 8.

LOUISIANA.

Staff Reappointed.—On the recommendation of Dr. William Kohlmann, the entire staff of Touro Infirmary, New Orleans, was reappointed.

Tuberculosis Ward Soon Ready.—The tuberculosis ward which is being erected at the Insane Asylum of the State of Louisiana, Jackson, will be ready to receive patients early this month.

Presentation to Matas.—A body of physicians, students and friends of Dr. Rudolph Matas, New Orleans, called at his home March 19 and presented him with a silver service of 125 pieces and a loving cup, in celebration of the twenty-fifth anniversary of his graduation from Tulane University Medical Department. Dr. Stanford E. Chaille, dean of the medical school, made the presentation speech.

MARYLAND.

Hospital Report.—At Cambridge Hospital during 1904, 682 patients were treated. There were 18 deaths, 11 being from incurable diseases, 2 from accident and 2 from typhoid fever.

Personal.—Dr. Richard H. Dixon, Dorchester County, sustained a severe sprain of the right ankle by a fall.——Dr. Martin W. Goldsborough has been made pathologist and *x*-ray operator at Cambridge Hospital.

Care of State Insane.—The report of the lunacy commission shows that up to Dec. 1, 1904, there were 2,938 insane persons in the state, of whom 401 were colored. There were 220 in county almshouses, 290 in county asylums or hospitals, 793 in private and corporate institutions, and 1,635 in state and city hospitals. The total for the previous year was 2,896. The secretary, Dr. Preston, states that the insane have in large part been removed from the county almshouses, either to one of the state institutions or county asylums, which constitutes a great improvement. Four counties provide separate accommodations for the insane, 2 make some attempt at separation of the insane from the paupers, 8 send all insane to the large institutions and 8 always have a few patients that would be better cared for in a state institution. In comparing state and county supervision the following contrasts are given: State supervision—Entertainment, occupation, kindly care, scientific treatment. County system—No occupation or entertainments, negligent care, the women not safe from outrage, no treatment. He urges that the state should assume the care of all its dependent insane. He proposes that this be done by enlarging the accommodations at the two state asylums, Spring Grove to 600 or 800, and Springfield to 1,200 or 1,500. The buildings could be completed by 1909. He proposes that the former assume the care of acute cases, being near the city, and that the latter with its 700 acres is admirably adapted to take charge of the chronic cases, the criminal and the negro insane. The last class are not provided for as they should be. They must be separated from the whites, and it might be better to build a third asylum especially for them. They are very poorly provided for under the present system, chiefly in the county institutions.

Baltimore.

May Treat Deformed Gratis.—Dr. R. Tunstall Taylor has been granted permission by the school board to treat deformed school children free of charge.

Correction.—The bureau of information for visiting physicians is at the Baltimore University Hospital and not at the Johns Hopkins Hospital, as was erroneously announced in our last issue.

Committed in Default of Bail.—Dr. Isaac H. Gardiner was committed to jail March 19 in default of $10,000 to answer the charge of performing a criminal operation. A writ of habeas corpus was served for the purpose of having the bail reduced and Judge Stockbridge ordered that he be released when he should furnish $4,000 bail.

Personal.—Dr. Edward H. Hume, a graduate of the Johns Hopkins Medical School, 1901, now assistant surgeon attached to the United States consulate at Bombay, India, and specialist in diseases of the tropics, has been appointed head of the medical department of the new Yale College in Chungsha, China.——Dr. Harry Friedenwald has been re-elected president of the Baltimore Branch of the Alliance Israelit Universelle.——Dr. Solomon J. Ulman has left Baltimore for a year's tour of Europe and North Africa.

MISSOURI.

Reappointed to Staff.—Drs. William J. Doyle and Walter C. G. Kurschner have been reappointed to the staff of the City Hospital, St. Louis.

Smallpox.—Badger Township, Vernon County, has 25 or 30 cases.——Galena has 4 new cases.——Only 6 houses are now under quarantine in Joplin.

Shooter Acquitted.—Dr. William S. Carrion, charged with assaulting Dr. J. R. A. Crossland, with intent to kill, was found not guilty by a jury March 18. These two physicians of St. Joseph indulged in a pistol duel in a barber shop in September last and Dr. Crossland was twice wounded.

Want Emergency Chests on Trains.—A bill has been introduced providing that all railroads be required to have on each passenger train an emergency dressing and instrument chest, to contain the following articles: Five pounds absorbent cotton, five pounds assorted bandages, five pounds plaster-of-paris bandages, ten yards plain gauze, one-pound bottle of chloroform (to be replaced with new bottle every four months), one hypodermic syringe with tablets, one dressing case of instruments, one amputating case, one Esmarch tourniquet.

NEBRASKA.

Hospital Open.—Fremont Hospital was opened to receive patients last week.

Amendment Passes.—The amendment to the medical practice act which has been indorsed by the Nebraska State Medical Association was passed by the senate March 22. The bill will appear in full in the next issue of The Journal.

New Insane Hospital Buildings Ready.—The buildings of the Nebraska Insane Hospital, Norfolk, which were destroyed by fire several years ago, are now ready to receive patients. Dr. James M. Alden, Pierce, is the superintendent of the institution.

No Certificate; Fined.—"Dr." John M. Johnson, Avoca, claiming to be a graduate of Rush Medical College, but who had not obtained a certificate from the State Board of Health, was fined $50 and costs for practicing medicine without a license, March 20.

NEW JERSEY.

Provision for Conference of State and Local Health Officers.—The legislature has just passed a law providing for an annual conference of state and local health officers, sanitary inspectors and delegates from local boards of health "for the purpose of securing uniform and efficient methods of procedure throughout the state for the promotion of the public health and the restriction of the spread of preventable diseases." The conference is to be called at such time and place as the State Board of Health shall decide, and the expenses of the delegates to the conference are provided for.

NEW YORK.

Many Seek Position.—Twenty-five physicians have applied to the civil service commission for the position of fire surgeon formerly held by Dr. E. C. W. O'Brien, deceased.

Substitute for the Pure-Food Bill.—This bill has been introduced by Senator Tully, chairman of the senate public health committee. It defines the use of paraffin and shellac in the manufacture of candy as adulterants and defines adulterants and misbrandings.

Meningitis in Yonkers.—There have been 39 fatal cases of cerebrospinal meningitis in Yonkers since January 25. This is said to be a larger mortality than that of any other place in this part of the country. The patients are not isolated, but the houses in which the cases occur are quarantined.

Danger in Hospital Crowding.—The current issue of *Charities* calls attention to the lack of facilities for consumptive patients, largely due to the present overcrowding of hospitals. It is said that in the Kings County Hospital, in addition to the 70 consumptives in the separate building for the treatment of tuberculosis, 81 consumptives remain in the general wards, and 70 have died in these general wards during the winter months. In February there were 115 floor beds in use, of which 48 were in wards where there were 42 men with positive cases of tuberculosis and a number of suspects.

Progress of the Coroner's Bill.—The hearing on the Elsberg bill took place March 21, when Dr. E. Eliot Harris appeared for the legislative committee of the New York State Medical Association and gave reasons why this office should be abolished. He said that the reason the coroner was the butt of ridicule for the public and the press was because he was a veritable "Pooh-Bah," exercising extraordinary authority and filling many offices. There was no man to be found to-day with such power of mind and versatility of talent who as coroner can sit on the bench as judge and decide the kind of evidence that shall be submitted to the jury; who possesses judicial authority to issue warrants for the arrest of those who fail to obey his commands to appear before him; who leaves the bench to answer a summons to take an antemortem statement or to examine a body, and to decide the question of the cause of death, incorporating in his decision the latest researches in chemistry, bacteriology, toxicology and pathology. The office is an expensive relic of bygone ages and has no other reason for its existence except that it has existed over 700 years.

Osteopathy Bill Favorably Reported.—The osteopathy bill, as The Journal predicted, has been favorably reported by the committee on judiciary. Dr. E. Eliot Harris, chairman of the committee on legislation of the New York State Medical Association, asks that the members of the senate and the assembly be petitioned in the interest of individual and public health to defeat the osteopathic bill for the following reasons:

1. Osteopathy, so-called, is an agent or method used in the treatment of disease, and is included in the general practice of medicine.

2. Osteopathy should not be made a special branch of medicine, by an act of the legislature, but should come under the present state laws, which govern all the special branches as well as the general practice of medicine. Any licensed physician has now the right to practice osteopathy as a specialty.

3. The legislature should protect the public by denying the endorsement of the state to any person, as being capable of treating the diseases of the human body, unless such person can make a diagnosis of the condition of the human body, to do which requires a full knowledge of the science of medicine as taught in the medical colleges of this state, including the use of drugs and other valuable therapeutic agents.

4. If the so-called osteopathic bill becomes a law all candidates who fail to pass the regents' examinations to obtain a license to practice medicine in this state may in this state treat all diseases of the human body by holding a diploma from any regular osteopathic college in the United States, a privilege which would lower the standing of this state in the educational world.

And, finally, it would be more reasonable for the legislature to separate the special branches of criminal, corporation, and real estate law from the general practice of law and establish for each of them a special examining board, so as to make it easier for the candidates for admission to the bar who desired to practice as specialists, than it would be for the legislature to select one special therapeutic agent used in the treatment of disease and to separate it from the general practice of medicine as a panacea for all diseases at the request of those enthusiasts who now ask for a special osteopathic examining board.

New York City.

Much Meningitis.—Cerebrospinal meningitis has claimed 386 lives in Greater New York since January 1. Most of the victims were children.

New High Record.—Bellevue Hospital had the highest census in its history during the past week, when 1,075 patients were enrolled. The four new pavilions recently opened made the accommodation of this number possible.

Many Coroner's Cases.—According to statistics just compiled by Coroner's Physician Weston there were 11,660 coroner's cases in Greater New York during 1904. Of these 9,810 were received at the Bellevue morgue. There are 217 in the list of unknown dead.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended March 18, 505 cases of tuberculosis, with 198 deaths: 383 cases of measles, with 9 deaths; 321 cases of diphtheria, with 34 deaths; 249 cases of scarlet fever, with 25 deaths; 149 cases of varicella; 135 cases of cerebrospinal meningitis, with 72 deaths; 31 cases of typhoid fever, with 7 deaths, and 1 fatal case of smallpox.

Confessed to Radium Cure Swindle.—Henry H. Kane and William H. Hale, who were arrested on evidence acquired by the counsel of the county medical society for having swindled a Mount Vernon carpenter out of $10,000 by means of a radium cure swindle, have been sentenced to serve four and eight months respectively in the penitentiary. The money was returned to the victim, otherwise the sentence would have been more severe.

For Hospital Funds.—A mass-meeting of the heads of hospitals and philanthropic workers was held March 23 to discuss the subject "How to Increase the Income of the Hospitals and to Stop the Leaks" It was suggested that the city should pay for charity patients about what the patients cost per capita, that the public should be taught to give generously and continuously, and that a business mechanism should be established to keep the interest of the public continually alive. A committee was appointed to study the present hospital conditions and to formulate a practical scheme for improving them.

The Meningitis Commission.—The first meeting of this body was held March 21, when maps of the city were studied with regard to the prevalence of the disease in certain localities, and the conditions peculiar to those localities were considered. They also studied the tabulated statistics of the past few years. They decided to issue cards to physicians in hospitals with blanks to be filled in with desired data. While all the questions were not decided, the commission will want to know the evidences of communicability and what is known of the biology of the bacilli producing the disease, with reference to differentiation, agglutination and pathogenesis. Under the clinical head they will inquire about the effect of drying on the bacilli and viability in spray, as bearing on isolation and infection. It is probable that the scope of the investigation will be worldwide and that information will be sought from hospitals all over the globe. The commissioners will give their services free and the entire amount given by the Board of Estimate and Apportionment will be expended for expenses incurred in compiling data. The Health Department has given diphtheria serum free to a number of the hospitals and to every person asking for it, the one stipulation being that they should receive reports of the results of its use. Dr. Biggs feared from what he had seen of the results of this treatment that there was little to hope from it. Every hospital in the city has cases of this disease at present and the mortality thus far is believed to have reached 70 per cent. One coroner's physician says that nearly a dozen cases have come under his notice within the period of a few days. The death rate is somewhat lower than for the past few weeks, and it is believed that the epidemic is on the wane.

PENNSYLVANIA.

To Relieve Congested Hospitals.—The house appropriation committee on March 22 reported favorably on bills for the immediate relief of the crowded state hosspitals for the insane. One-story fireproof buildings are to be erected within thirty days. For the Norristown State Hospital for the Insane $70,000 has been appropriated for four buildings; for the Harrisburg State Hospital for the Insane, $35,000 for two buildings, and for the Danville Hospital for the Insane, $85,000 for five buildings.

The Usual Anti-Idiocy Bill.—The legislature on March 21 passed a measure to overcome idiocy with the surgeon's knife. This is a proposition which has been presented to many former legislatures. It has always met with defeat, either in the committee or on the floor of the house, because it was deemed too radical a method. It passed both houses without meeting any very determined opposition by a vote of 125 to 28. The following is the text of the bill: "That on the first day of July after the passage of this bill it shall be compulsory for each and every institution in the state entrusted exclusively or especially with the care of idiots and imbecile children to employ on its staff at least one skilled neurologist and one skilled surgeon, of recognized ability, whose duty it shall be in conjunction with the chief physician of the institution to examine the mental and physical condition of the inmates. If in the judgment of this committee of experts and board of trustees procreation is inadvisable and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeon to perform such operation for the prevention of procreation as shall be decided safest and most effective. The operation shall not be performed except in cases that have been pronounced non-improvable after one year's test treatment in the institution."

Philadelphia.

Personal.—Dr. and Mrs. Herbert Norris have sailed for Europe.——Dr. J. Leslie Davis left the city March 18 for a trip around the world.——Dr. Robert G. LeConte has been elected a representative of the board of trustees of the University of Pennsylvania.

Anthrax Patient Recovers.—The patient admitted to the Municipal Hospital some weeks ago from New Jersey, suffering from anthrax contracted while tending cattle which had died of the disease, is recovering and will be discharged from the hospital in a few days.

Medical Class Reunion.—The class which graduated in 1868 from the Medical Department of the University of Pennsylvania celebrated its thirty-seventh anniversary at Atlantic City, N. J., March 13. Dr. Wharton Sinkler presided and 17 members of the class were present.

Money to Charity.—The net proceeds of the American charity ball amounted to $8,800. This enables the managers to give $2,200 to each of the following charities: Hospital of the University of Pennsylvania (surgical wards), Jefferson Medical College Hospital, Pennsylvania Society to Protect Children from Cruelty and the Bedford Street Mission.

Health Report.—Typhoid fever is still rapidly on the increase. 306 new cases were reported during the week. This is the largest number in any one week this year. Last week there were 247 new cases reported, 178 for the previous week and 92 for the week before. The deaths from the disease also show a proportionate increase, being 19 for this week. Most of the new cases are from the northeastern section of the city, which is principally supplied with water from the Delaware River. Comparatively few cases have been reported from the district receiving filtered water, thus confirming the statement of the health authorities that impure and unboiled drinking water is responsible for the outbreak. Two more deaths from cerebrospinal meningitis were recorded for the week, and 8 new cases of the disease were also reported. The total number of deaths from all causes reached 531. This is a decrease of 58 as compared with last week, and a decrease of 58 over the corresponding period of last year. The principal causes of death were as follows: Typhoid fever, 19; diphtheria, 7; pulmonary tuberculosis, 51; cancer, 19; paralysis, 35; heart disease, 62; bronchitis, 17; pneumonia, 65; enteritis, 30; Bright's disease, 36. There were 409 cases of contagious disease reported, with 27 deaths, as compared with 356 cases and 32 deaths for the preceding week.

GENERAL.

Physician for Insane Hospital Wanted.—Examinations will be held in various cities by the United States Civil Service Commission on April 26 and 27 to secure eligibles from which to fill a vacancy in the position of physician in the Government Hospital for the Insane, Washington, D. C., and to fill similar vacancies later. Only unmarried women between the ages of 25 and 40 years, citizens of the United States, will be examined. Credit will be given for experience in insane hospitals, in general hospitals and in actual surgical practice. Other information may be had of the United States Civil Service Commission, Washington, or the secretary of the board of examiners at any of the cities where the civil service examinations are regularly held.

Reciprocity Convention.—The American Confederation of Reciprocating, Examining and Licensing Medical Boards will hold a meeting at the Hotel Claypoole, Indianapolis, April 27, at 10 a. m. Reports will be considered from the committees on advanced standing, uniformity of state board examinations, uniformity of entrance and graduation requirements, uniformity of forms and modifications necessary in reciprocal qualifications. Reports on these subjects were presented at the previous meeting, held in St. Louis, Oct. 25, 1904, reported in The Journal, November 5 and 19, pages 1407 and 1567. Members and ex-members of state medical boards, educators and others interested in interstate medical reciprocity are invited to be present and to take an informal and advisory part in the meeting.

District Medical Libraries in Canada.—The *Bulletin Médical de Québec* is urgently advocating the foundation of a small medical library in each district, where the physicians can see the current medical journals at least. The national medical bureau has been considering the matter and voted to apply its surplus to this purpose, but to date it has had no surplus at its disposal. A committee was appointed to study ways and means to encourage the medical societies in rural districts and to promote scientific work among them. The chairman of the committee in presenting his report said that a library of current periodical medical literature would do far more than anything else to promote the desired end. A carefully chosen collection of medical journals is the best possible means to enable the practitioner to follow the progress of science and apply the results of his clinical observation. The committee recommended that financial aid should be given only to district societies with a given minimum of regular meetings and regular attendance.

CANADA.

Manitoba Medical College to Build.—The present Manitoba Medical College building being no longer able to accommodate the classes, the authorities will build a new and larger college building close to the General Hospital. The building will cost about $50,000.

Hospital for Railway Men in Winnipeg.—A movement has been inaugurated in Winnipeg, Man., to establish a railroad employes' hospital for the benefit of the men engaged in railway work from Fort William to Calgary, N. W. T. The Order of Railway Conductors is the originator of the enterprise, and a convention of delegates from railway employes' associations will be held in the near future to draft a charter and to put the scheme on a workable basis.

FOREIGN.

Australia Medical Congress.—The next Australian Medical Congress is to be held in Adelaide, South Australia, in September, 1905.

Cothenius Medal Given to von Leyden.—The Halle scientific society known as the Leopoldo-Carolinische Akademie deutscher Naturforscher, has awarded the gold Cothenius medal to Prof. E. von Leyden of Berlin "for his services in the clinical-scientific domain."

Funds for Research on Experimental Syphilis.—The Vienna Academy of Sciences has given Professor Finger and Privatdocent R. Kraus about $400 each from the Treitl endowment, for their work on transmission of syphilis to monkeys and immunization against the disease.

A Medical College for Singapore.—An endeavor is being made to raise funds to establish a medical school in Singapore. If a sum of £7,000 ($35,000) is raised the government of the Straits Settlements is prepared to provide a building and to equip it for teaching purposes.

Charitable Bequests by Paris Surgeon.—The will of Professor Tillaux, who died last October in Paris, leaves $100,000 to a fund for providing old age pensions for working men. He also bequeathed about $2,000 to the medical association of the Seine district and $400 to the society of former internes of the Paris hospitals. Tillaux was a prominent surgeon, president of the Académie de Médecine at the time of his death, and author of several text-books.

Decrease in Numbers of Medical Students in Germany.—During the last ten years the number of medical students at the twenty German universities has dropped from 7,796 to 5,926, a decline of about 24 per cent. In 1830 there were 2,355 medical students at these universities, and this average was maintained until 1881, when the number rose to 4,779 and to 8,381 in 1890, the maximum ever attained. The number of medical students at Berlin in 1895 was 1,220; it is now 1,111.

Accommodations for the Lisbon Congress.—The Hamburg-American line has placed the *Hamburg* at the disposal of the German physicians and their families who wish to attend the International Medical Congress at Lisbon next year. The vessel will be moored at some convenient wharf and will serve as a hotel for the passengers during the congress. After a brief trip to Gibraltar and Madeira the vessel will return to Hamburg. The *Lancet* of February 11 states that Cook & Son have offered to charter a passenger ship for the English members of the congress, to serve as a floating hotel. The hygienic conditions of the anchorage are now being investigated before arrangements are finally concluded.

Annual Meeting of the Board of the Munich Medical Weekly.—Our esteemed contemporary, the *Münchener medicinische Wochenschrift*, is published by twelve physicians, only five of whom reside in Munich. The list includes Curschmann, Bäumler, von Leube and von Ranke. At the annual meeting in March about $3,100 were distributed among various societies for the relief of widows and orphans of physicians, and other organizations for the aid of members of the profession. About $500 were given to the "Leipziger Verband," $100 to the Pettenkofer House building fund, and $50 to the Riegel Memorial fund. The sum thus distributed annually out of the profits of the weekly has grown a little every year to the present total of 12,400 marks or about $3,100.

Measures Against Yellow Fever in Brazil.—A most energetic campaign against yellow fever has been carried on at Rio Janeiro by the authorities during the last few months. A large force of men has been employed to exterminate or to sterilize the breeding places of mosquitoes. The rain water drains are sterilized with the Clayton apparatus, which kills rats and all forms of life in the drains. The houses where cases of yellow fever occur are disinfected and the patients are protected with netting. The supreme court, however, has recently decided that this disinfection of a house can not be carried out against the express command of the householder, a trial case having been appealed, as mentioned in these columns March 25. The *Brazil Medico* and the chief of the public-health service express great consternation at this decision, which threatens to annul the prophylactic work of the authorities. They claim that the material is all ready for a conflagration, as there have been one or two deaths from imported yellow fever every fortnight during the last three months, the total mortality during the winter being about 13, but there has been no epidemic, as such strict precautions have been taken. Immigrants are arriving by thousands, trusting in the assertions by the government that yellow fever has been stamped out, and these assertions have been borne out by the facts; there is no yellow fever endemic in Rio Janeiro. They lament that it will regain its reputation of being a focus for yellow fever if this decision of the supreme court is allowed to stand.

Approaching International Congress of Surgery.—The preliminary announcement of this First International Congress of Surgery was mentioned in The Journal of Oct. 22, 1904, page 1242. The congress will convene at Brussels on Monday, September 18 and close on Saturday, September 23. Prof. T. Kocher of Berne will take the chair, and the following six questions have been appointed for discussion: "Value of the Blood Count for Surgery," with addresses by W. W. Keen, 1729 Chestnut Street, Philadelphia, ex-president of the American Medical Association; by Sonnenburg of Berlin, Depage of Brussels and de la Torre of Madrid. The second theme is "Treatment of Hypertrophied Prostate," with addresses by R. Harrison of London, T. Rovsing of Copenhagen and von Rydygier of Lemberg. The third question is "Surgical Intervention in Non-Malignant Affections of the Stomach," with addresses by Mayo Robson of London, von Eiselsberg of Vienna, Mattoli, Monprofit of Angers, Rotgans of Amsterdam and Jonnesco of Bucharest. The "Treatment of Tuberculosis of the Joints" is to be presented by Bier of Bonn, Broca of Paris, Bradford of Boston, Codivilla of Bologna and Willems of Ghent. The fifth theme is "Treatment of Peritonitis," with addresses by Lennander of Upsala, Friedrich of Leipsic, Lejars of Paris, McCosh of New York, Krogius of Helsingfors and de Isla of Madrid. The closing discussion will be on the "Diagnosis of Surgical Affections of the Kidney," to be presented by Albarran of Paris, Kümmel of Hamburg, Giordano of Venice and Lambotte of Brussels. It is announced that the discussions will be restricted to these six subjects. Dr. C. Willems, Place St.-Michel, Ghent, Belgium, is the secretary general of the congress.

Antituberculosis Legislation in the Scandinavian Countries.—As long ago as 1901 Norway made compulsory the notification of cases of pulmonary and laryngeal consumption and of all deaths from tuberculosis. All tuberculous patients have to be instructed in regard to hygienic precautions by their attending physician or the public medical officer. The public authorities take charge of the disinfection of dwellings and private belongings. The authorities are also empowered to remove to a hospital any consumptive who is considered a menace to his surroundings. The laws further provide against employment of tuberculous nurses for children, and enjoin hygienic precautions in hotels, factories, workshops, cars, etc.

A somewhat similar law, but less stringent, went into effect in Sweden on Jan. 1, 1905. Denmark is on the point of adopting still more comprehensive regulations. The bills now under discussion have been favorably indorsed by the legislators of all parties and there is every prospect that they will be or have already been adopted. The bills were drawn up by a committee of three: Drs. K. Faber, C. Lorentzen and a government official. In addition to the provisions of the Norway law, schoolmasters are required to report any cases of tuberculosis that come to their knowledge among the children, and applicants for the post of school teacher must present a certificate to the effect that they are free from tuberculosis. A teacher suffering from tuberculosis in an infectious form is to be pensioned with two-thirds of the salary he has been receiving. All institutions where the tuberculous receive treatment are to be under government inspection, and the number of beds and rate of charges are under state control. Certain classes of patients are to receive assistance from the state and the government also undertakes to assist in building new sanatoria. These various measures undertaken by the government to prevent the spread of tuberculosis are set forth in a pamphlet recently published in French by H. Rordam at Copenhagen. The National Antituberculosis League was founded in 1901, and now has more than 20,000 members. It owes its inception to the author of the above pamphlet and to Dr. C. Lorentzen.

LONDON LETTER.

Proposed Union of the Medical Societies of London.

The want of centralization is a feature of the medical institutions of London—hospitals and societies. It is no doubt due to that spirit of individualism which has played such an important part in English life and which has led people to do things themselves instead of looking to the state to do them for them. But however admirable in some respects, and in spite of the great results which have been achieved by it, this individualism his certain drawbacks. The large number of independent medical societies in the metropolis is a case in point. This involves needless expense in the support of separate buildings and often of separate libraries, and also all the evils of want of co-ordination. Thus (putting aside merely local societies) there are four large societies which cover much the same ground and which deal with general medicine and surgery—the Royal Medical and Chirurgical, the Medical Society of London, the Clinical, and the Hunterian, and there are also the societies devoted to specialties. For many years the desirability of uniting all the societies into one body and bringing them under one roof has been mooted, but has never taken practical shape. At last, however, a step has been taken in this direction. At the annual general meeting of the most important of these societies, the Medical and Chirurgical, the president, Sir Douglas Powell, in his address spoke of the benefits to the profession from the union of the medical societies of London into one "Royal Society of Medicine." The proposal was supported by Sir Thomas Smith, Mr. D. H. Goodsall, Dr. Theodore Williams, Mr. Timothy Holes and Dr. W. H. Allchin. The following resolution was carried unanimously: "That the council of the society be requested with as little delay as possible to invite the leading medical societies of London to arrange for a joint meeting for the purpose of considering the advisability of amalgamating, and to take the necessary preliminary steps for that purpose." The project is certainly of great importance, for all these societies are not merely London societies, but representative of the men of eminence in the whole country.

Pharmacology

PHARMACY AND CHEMISTRY IN THEIR RELATIONS TO MEDICINE.

The business of manufacturing pharmaceutical preparations is essentially an American institution, and it is an interesting fact that the largest pharmaceutical manufacturing firms in the world are in the United States.

Prior to 1850 retail druggists usually obtained their supplies of galenical preparations from wholesale druggists or from manufacturing chemists, who had added galenicals to their limited line of chemicals. With the introduction of concentrated preparations, such as fluid extracts, and subsequently, the elixirs, syrups, and pills, pharmacists and wholesale druggists began to engage in the manufacture of these preparations, and gradually extended their business until to-day, some of these concerns are mammoth establishments, doing business on a gigantic scale, and providing for every conceivable medicinal want of the physician. Some of these establishments, in connection with their biologic departments, maintain thousands of live animals for experimental purposes. These establishments have grown up mostly since the Civil War, as at that time the government laboratories could not keep up with the demands of the U. S. Army Hospital Department, and, therefore, had to rely on outside manufacturers. The greater number of these firms had a small beginning, though a notable exception is the Tilden Co., at Mt. Lebanon, N. Y., which was founded by the brother of the unsuccessful candidate for the presidency in 1876, and in which he is said to have largely invested. The cultivation, collection and preservation of medicinal plants or drugs by the Shaker colony at Mt. Lebanon suggested the manufacture of the concentrated extracts, and it was there that fluid extracts were first produced on a large scale.

FLUID EXTRACTS.

The first fluid extract of the kind now familiar was made by William Procter, Jr., of Philadelphia, who published a process for making fluid extract of ergot in 1857. In the same year, Frederick Stearns of Detroit made an elaborate report on the elegant pharmaceuticals of French origin—the first of the present French specialties—in which fluid extracts of a half score drugs were also recommended. The fluid extracts were a distinct advance in pharmacy. They were sufficiently concentrated to permit the administration of the required amount of the drug without the employment of too much alcohol and they were of uniform drug strength, viz., 1 minim represented 1 grain of the drug. They had thus a distinct advantage over tinctures and other liquid preparations, whose variable strength, or rather lack of uniformity in drug strength, was often confusing. As fluid extracts could be made more cheaply on a large scale than in a small way, the large manufacturers were able to offer the ordinary fluid extracts at prices lower than they could be made by the average retail druggist, and having obtained a start in this way, the manufacturers soon extended their operations; first, by introducing new remedies in fluid extract form, and afterward by adding numerous lines of the so-called elegant preparations as these latter were devised by pharmaceutical art and science in response to progressive therapeutics, until the articles catalogued now number in the thousands.

THE ELIXIRS.

The term elixir had been used from the time of the alchemists to designate various preparations designed to prolong life, from elixir *ad longam vitam* and elixir paracelsi to elixir paregoric, but the adoption of this name for the preparations now so designated is of more recent origin. The first elixir of this class was the elixir cinchona made by A. B. Taylor of Philadelphia in 1859. This was followed by the elixir ammonium valerianate in which the disagreeable taste of the salt was nicely masked. The compound elixir of taraxacum was designed about this time by P. C. Candidus, a pharmacist yet practicing in Mobile, who accidentally discovered the value of the elixir in disguising the bitter taste of quinin sulphate. It was subsequently observed that the licorice contained in this elixir was the most effective agent in disguising the bitter taste of drugs, which led, therefore, to the use of the various elixirs of glycyrrhiza as adjuvants.

THE "PHARMACIE ELEGANS."

About this time, prominent pharmacists in Philadelphia and in New York began to put up the usual forms of prescription mixtures of quinin, iron and strychnin, the iodids, bromids, etc., in elegant appearing and palatable forms, and to sample physicians with them under the name of elixirs. The business grew until these retail pharmacies soon engaged in the manufacture of elixirs as a specialty and they became large establishments. John Wyeth & Brother, and Hubbell & Co., Philadelphia, Caswell & Hazard, and Reed & Carnrick of New York, were among the earliest of these firms to begin the manufacture of these preparations. The elixirs were exceedingly palatable, they were agreeable in appearance and flavor, and when honestly and carefully prepared they were indeed a desideratum, enabling prescribers to escape the thralldom of only too often repulsive decoctions and infusions. As long as they were prepared true to formula they were a distinct advance in pharmacology and in therapeutics, but competition, and the preparation of elixirs by persons without special skill or experience caused physicians to become suspicious of this class of preparations. This suspicion was strengthened by the attempt to present every imaginable medicinal combination in the form of elixirs. The most incompatible substances were presented often in the most eligible appearing elixir, until it was said of them that they were the most striking illustration of that kind of pharmaceutical products in which "therapeutic efficiency had been sacrificed for pharmaceutical elegance." The elixir thus began to fall in disrepute, and while in many respects they respond most closely to the maxim of *curare cito, tuto et jucundo*, with a few important exceptions, they are now but little used.

Miscellany

THE AMERICAN PHYSICIAN.

Pointed Criticism of the American Medical Man by a Chinese Visitor.

To look at ourselves and our affairs through the eyes of others is often very enlightening; it is at least suggestive. The *Medical News*, Jan. 7, 1905, quoted a chapter from "As a Chinaman Saw Us," a book published by D. Appleton & Co., New York City, from which we quote certain portions as follows:

"The Americans have made rapid advances in medicine and surgery and they have some extraordinary physicians. From two to four years of study completes the education of some of the doctors; and hundreds are turned out every year. Some are of the old and regular school of medicine, but others are called homeopathic, which means that they give small doses of the more powerful medicines. Then there are those who practice in both schools. Indeed, in no other field does ignorance, superstition, credulity and lack of real education display itself as among the American doctors and healers. I believe I could fill a volume by a mere enumeration of the diabolical and absurd nostrums offered by knaves to heal men who profess to hold in ridicule the Chinese doctors."

After enumerating with astonishment the varieties of healers, as Eddyites, faith curists, spirit doctors, fake hypnotists, water curers, osteopaths, color doctors, electric healers, etc., he continues:

"But the most amazing class comprised the patent-medicine men, who are usually not doctors at all, but buy from someone a 'cure' and then advertise it, spending in one instance which I investigated $1,000,000 a year. Every advantageous wall, stone or cliff in America will be posted. You see the name at every turn, and the gullible Americans bite, chew and swallow.

"It is not overstating facts when I say that three-fifths of the people buy some of these patent nostrums, which the real. medical men denounce, showing that the masses of the people are densely ignorant, the victim of any faker who can shout his wares loud enough. In China such a thing would be impossible; the block would stop the practice; but the Americans assure me that China is a thousand years behind the times, for which let us be devoutly thankful.

"I have not enumerated a tenth of the kinds of doctors who prey on these unfortunate people. There are companies of them who guarantee to cure anything, and skillfully mulct the sick of their last penny. There are retreats for the unfortunate, farms for deserted infants, and homes for unfortunate women carried on by villains of both sexes. There are traveling doctors who go from town to town, who cure 'while you wait,' and give a circus while talking and selling their cures; and in nine cases out of ten the nostrum is an alcoholic drink disguised.

"In no land under the sun are there so many ignorant, blatant fakers preying on the people, and in no land do you find so credulous a throng as in America, yet claiming to represent the cream of the intelligence of the world; they are so easily led that the most impossible person, if he be a good talker, can go abroad and by the use of money and audacity secure a following to drink his salt water, paying a dollar a bottle for it and singing his praises. Such a doctor can secure the names and pictures of judges, governors, senators, congressmen, prominent men and women, officers of the volunteer army, artists, actors, singers—in fact, prominent people of all kinds will provide their pictures and give testimonials which are blazonly published. These same people go to a Chinese drug shop and laugh at the 'heathen' drugs, and wonder why the Chinaman is alive. America has a body of physicians and surgeons who are a credit to the world, modest, conscientious, and with a high sense of honor, but they are as a dragon's tooth in a multitude to the so-called 'quacks' who take the money of the masses and prey on them, protected in many cases by law. No one profession demonstrates the abject credulity of the great mass of Americans as that of medicine. . . .

"Of the best physicians in America one can not say enough in praise. I was most impressed with their high sense of honor. They have an agreement which they call their 'ethics' by which they will not advertise or call attention to their learning. Consequently the lower and ignorant classes are caught by the blatant chaff of the patent-medicine venders and the 'quack' doctors. What the word 'quack' means in this sense I do not quite know; literally it means the cry of a goose. The 'regular doctor' will not take advantage of any medicine he may discover or any instrument; all belongs to humanity, and one doctor becomes famous over another by his success in keeping people from dying. The grateful patient saved tells his friends, and so the doctor becomes known. In all America I never heard of a doctor that acted on the principle which holds among our doctors, that the best way to cure is to watch the patient and keep him well, or prevent him from being taken sick. The Americans in their conceit consider Chinese doctors ignorant fakers; yet, so far as I could learn, the death rate among the Chinese, city for city, country for country, is less than among Americans. The Chinese women are longer lived and less subject to disease. In what is known as New England, the oldest well-populated section of the country, people would die out were it not for the constant accession of immigrants. On the other hand, the Chinese constantly increase, despite a policy of non-intercourse with foreigners. The Americans have, in a civilization dating back to 1492, already begun to show signs of decadence, and are only saved by constant immigration. China has a civilization of thousands of years, and is increasing in population every day, yet her doctors and their methods are ridiculed by the Americans. The people have many sayings here, one of which is, 'The proof of the pudding lies in the eating.' It seems applicable to this case."

Correspondence

Osteopathy.

CLEVELAND, OHIO, March 22, 1905.

To the Editor:—I have noticed that in articles relative to osteopathy, the profession makes the claim that it is "massage" or "Swedish movements" or something akin to these, and that the osteopath as specifically denies this and says that, although there is a similarity in these various systems of mechanotherapy and osteopathy, yet "*there is a difference* essential in kind and fundamental in importance." His statement is probably not true, but the question as to what osteopathy is does not seem to be the essential point to determine, but rather what is the value of his method. If it is a worthy system of healing it should be recognized and used, while if its claims are false it is criminal to allow the practice.

The followers of this "school" affirm that "osteopathy is still in its infancy," and yet they claim that nearly or quite all diseases are amenable to its influence! Diagnoses are made and treatment given by operators who are nominally required to give but twenty (20) months to the study of the method. Those operators are sincere in their belief—the majority of them. Their school teaches them to be quite optimistic in osteopathy and always pessimistic in everything else. It is useless to appear before courts and to affirm that osteopathy is massage, etc., for this does not affect their claims that they effect cures. Likewise, nothing is gained by placing a dead lamb on the witness' table and challenging the operator to move bones. Such opposition only goes to support their statements that the theories and methods of their practice are not understood.

Usually when scientific claims are made it is customary to furnish the evidence for such, but in no osteopathic text-book am I able to find even one original experiment on which a claim is based, and their theory is one which demands physiologic proofs. So far as I know, no osteopathic school gives a course in experimental physiology—the Kirksville school perhaps schedules one, but does not give it. Their "science" is based on theory alone, and yet the operators have pushed forward their views with an enthusiasm which one would expect to be backed by far stronger arguments than the one usually given—"we get results." It would seem that the only reasonable method for determining the value of osteopathy lies in a thorough experimental research of its theories and the fact that this is not done by osteopaths themselves does not relieve the medical profession of this duty.

Osteopathic theories change, and the teachings of a few years ago are now obsolete—perhaps criticism has accomplished this—and may not the present claims of osteopaths be decidedly modified if some one who has the time and opportunity will make a complete study of their tenets. The results would be interesting—and valuable. E. F. Wakefield

Straw Charcoal Dressings of the Japanese.

Brooklyn, N. Y., March 20, 1905.

To the Editor:—I am greatly interested in an item under the above title which appeared in The Journal, March 4, page 731. In this item credit is given to Surgeon-General Kikusi for having first suggested the use of charcoal for primary dressings in such cases. As you will see by enclosed extract from reprint of a paper read at the International Medical Congress in London, 1881, I must lay claim to originality as to suggestion and technic, viz.: "I believe a large amount of these septic complications is due to the direct infection": and after some explanatory remarks, urged the following substitute for the ordinary bandaging: "Among almost all continental nations charcoal is largely used, and everywhere available, and easily obtained; I would suggest, then, after operation, the instant envelopment of the wounds, particularly those of the limbs, and especially, as I think, those of the lower limbs, in a sack or bag (a common, small pillow-slip would serve) of charcoal, finely pulverized; a fair excess of this to be used, so as to shield and envelop the tissues; the charcoal to be either directly laid on the wound or mediately, a fold of some dressing, gauze, book muslin, or the like, being applied next the surface; this not to be removed for days at a time, except under pressing necessity, and then preferably by a jet of water from some clean source; the same form of dressing to be reapplied thereafter when necessary." The paper mentioned was published in full in the *New York Medical Journal*, October, 1882, under heading, "A Ready and Convenient Antiseptic Dressing for Amputation and Other Open Wounds in Field Hospitals." A supplementary paper on the same subject was published by me in the *Medical Record*, Jan 30, 1897. S. Sherwell, M.D.

The Oldest New Hampshire Practitioner.

Worcester, Mass., March 21, 1905.

To the Editor:—In The Journal, March 11, 1905, in the list of deaths it is stated that Alvah R. Cummings, M.D., aged 78, Dartmouth Medical College 1853, was the oldest practitioner of New Hampshire and the oldest member of the New Hampshire Medical Society. I wish to correct the last two statements, for, so far as my knowledge goes, that honor belongs to my friend and former colleague, William Waterhouse, M.D., of Barrington, N. H., now in his eighty-ninth year. He was born Aug. 28, 1816, graduated from the Medical Department of the University of New York in 1842, and joined the New Hampshire Medical Society in 1860, twenty-one years before Dr. Cummings joined the same society. Dr. Waterhouse has been in constant practice up to within a year and is now enjoying good health. He is ten years the senior of the late Dr. Cummings. R. J. Ward.

Memorial to Dr. N. S. Davis.

Hartford, Conn., March 20, 1905.

To the Editor:—The American Medical Society for the Study of Alcohol and Other Narcotics has arranged to hold a memorial meeting in memory of the late Dr. N. S. Davis of Chicago at Portland, Ore., July 11, 1905. An entire evening will be devoted to commemorative addresses and papers on the life and work of Dr. Davis. Dr. H. O. Marcy, Boston, will deliver a memorial oration, which will be followed by addresses by Drs. Webster, Hall, Crothers, Hollister, Didama and others. Arrangements are being made to establish a memorial lectureship to the work and memory of Dr. Davis to be delivered annually at the sessions of the Association.

T. D. Crothers.

An Explanation.

Louisville, Ky., March 28, 1905.

To the Editor:—In our efforts to place before the medical profession testimony of the highest character from physicians who have used our preparations (formula published), we issued postal cards bearing a testimonial given us several years ago by Dr. Lewis S. McMurtry, President-elect of the American Medical Association. Dr. McMurtry was not aware that these cards were issued, and, of course, had never given his consent or approval. On receiving a protest from him, we immediately ceased issuing the objectionable cards, and we desire to offer voluntarily this explanation.

George A. Newman Co.
By Addison Dimmitt, Sec'y.

Praises Improved Arrangement of Journal Digest.

Lawrence, Mass., March 21, 1905.

To the Editor:—I can not forbear expressing my satisfaction at the changed position of digest and contents in The Journal. The placing of the second page of contents directly after the first without intervention of advertisements is much more convenient and *professional* in appearance.

W. H. Merrill, M.D.

Association News

Portland Session Worth Attending at Great Trouble and Expense.

From both points of view—the opportunities of the session and the attractiveness of the trip—the Portland session should be one of the most largely attended in the history of the Association, predicts the *Medical Fortnightly*. No argument is needed to convince regular and occasional attendants that the scientific worth of the sessions wherever held, always abundantly repay for all expenses and inconveniences incurred; the Portland session will be no exception to this rule. the program promised will be interesting and instructive in a high degree to workers in all lines of medical science—a better has never been prepared; add to this the opportunity of rubbing shoulders with the men who are doing things in medicine, and it needs no more to convince one that one's presence will have been abundantly worth while. But while the scientific is the foremost aim and object of the session of the Association, it is also a fact that a good majority of those who attend make the occasion a time for recreation and sight-seeing. Never have greater opportunities been offered for this than are at our command this year. The Portland Exposition will be in size and attractiveness in the class of that at Buffalo; the chief criticism of the St. Louis Exposition was that it was so large that it could not be seen in less than a month and that its very immensity was a disadvantage; Portland's will be free from this criticism, but will furnish an abundance of natural and artificial beauties and such a mass of scientific, art, industrial and natural exhibits as must prove interestingly entertaining and satisfying. Profiting from the experience of former exposition cities, Portland will be better able to care for her guests than ever before has been done; hotel and private accommodations will be abundant at very reasonable rates.

Marriages

John D. Miller, M.D., Dayton, Ohio, to Miss Julia Kelly of New York, January 20.

James T. Black, M.D., to Miss Alda M. Anderson, both of Elroy, Texas, February 22.

Herbert Norris, M.D., to Miss Harriet W. Frothingham, both of Philadelphia, March 15.

Fowler Border, M.D., Mangum, Okla., to Mi. Maude Holcomb of Hobart, Okla., February 22.

Samuel Schultz, M.D., Coldwater, Mich., to Miss Annie Bacon, at Chelsea, Mich., March 18.

James McFadden, M.D., Appleton, N. Y., to Mrs. Arian T. Benton of Saratoga, N. Y., March 7.

Henry Kennon Dunham, M.D., to Miss Amelia Smith Hickenlooper, both of Cincinnati, March 14.

John Rankin McElroy, M.D., Jonesville, N. Y., to Miss Clair Ella Tanner of Cohoes, N. Y., March 8.

J. H. Morgan, M.D., Dighton, Kan., to Miss Lettie Bargdall of Chillicothe, Mo., at Kansas City, March 18.

Deaths

Russell Murdoch, M.D. University of Virginia Medical Department, Charlottesville, 1861, of Baltimore, surgeon in the Confederate service during the Civil War, one of the founders of the Baltimore Eye, Ear and Throat Hospital; formerly lecturer on diseases of the eye and ear in the University of Maryland, and professor of diseases of the eye, ear and throat in the Woman's Medical College, Baltimore; a member of the Medical and Chirurgical Faculty of Maryland, American Ophthalmological Society and American Otological Society, died at Johns Hopkins Hospital, Baltimore, March 19, from cerebral hemorrhage which occurred just after he had completed an operation the previous afternoon, aged 66.

Michael H. Brophy, M.D. Laval University Medical Department, Quebec, 1885, dean of the College of Physicians and Surgeons of Quebec since 1898 and one of the founders of the *Bulletin Médical de Québec* and of the Association of French-Speaking Physicians of North America, died at his home at Ste. Foye, Quebec, February 24, from pneumonia, after a short illness, aged 45.

Amos Harrison Brundage, M.D. New York University, New York City, 1855, a member of the New York State Medical Association, surgeon of the One Hundred and Seventy-ninth New York Volunteer Infantry and Sixth New York Volunteer Cavalry in the Civil War, died March 22 at his home in Brooklyn, N. Y., from cerebral hemorrhage, aged 76.

Andrew W. Patterson, M.D. Pennsylvania Medical College, Philadelphia, 1841, founder of Eugene City, Ore., member of the territorial legislature, state senator in 1870, surgeon during the Rogue River Indian campaign of 1885-1886, for three terms superintendent of schools of Lane County, died at his home in Eugene City, Dec. 20, 1904, aged 90.

Willis P. Spring, M.D. Harvard University Medical School, Boston, 1879, a member of the American Medical Association, formerly coroner and county physician of Hennepin County, Minn., died at his office in Minneapolis from accidental asphyxiation by gas, March 22, after lying unconscious for sixty hours, aged 50.

Thaddeus W. Johnson, M.D. Vanderbilt University Medical Department, Nashville, Tenn., 1885, some-time state senator, alderman, president of the Board of Education, and twice mayor of South Pittsburg, Tenn., died March 16 at his home in that city from nephritis, after a protracted illness, aged 52.

Frank Dulin, M.D. St. Louis College of Physicians and Surgeons, 1882, a member of the American Medical Association, police surgeon of Denver, died at the Emergency Hospital, Denver, March 14, two days after he had been shot while in the execution of his duty by an insane criminal.

Benjamin B. Lenoir, M.D. Jefferson Medical College, Philadelphia, 1846, a member of the American Medical Association, and for nearly sixty years a practitioner of Loudon County, Tenn., died at his home in Lenoir City, March 13, from pneumonia, after an illness of one week, aged 84.

John S. Briggs, M.D. University of Nashville (Tenn.) Medical Department, 1889, died at his home in Bowling Green, Ky., March 17, from acute meningitis after an illness of two weeks, aged 38. He retired from practice several years ago on account of ill health.

Samuel B. Hoppin, M.D. Jefferson Medical College, Philadelphia, 1852, surgeon in the Navy during the Civil War, for thirty years registration physician in the prothonotary's office, Philadelphia, died at his home in that city, March 21, aged 86.

George W. Phillips, M.D. Indiana Medical College, Laporte, 1846, surgeon of the Seventy-fifth Illinois Volunteer Infantry in the Civil War, died at his home in La Junta, Colo., March 17, from the effects of a fracture of the femur fifteen months before, aged 83.

John A. Smith, M.D. Medical Department of Western Reserve University, Cleveland, 1881, some-time coroner and physician of Lawrence County, Pa., died at his home in New Castle, March 21, after an illness of several months, aged 49.

Alexander F. H. Gale, M.D. College of Physicians and Surgeons in the City of New York, 1887, of New York City, died at sea on the steamer *Trinidad*, on which he was taking a trip for his health, March 17, from influenza, aged 35.

George Adams Bright, M.D. Harvard University Medical School, Boston, 1860, rear admiral U. S. Navy, retired, formerly in charge of the Naval Hospital, Washington, died at his home in that city, March 12, aged 67.

Abraham S. Brubaker, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1877, died at his home in Indianapolis, March 16, from the effects of injuries received in a fall a year ago, aged 52.

John A. Gregg, M.D. Dartmouth Medical School, Hanover, N. H., 1883, of Somerville, Mass., died in the Massachusetts General Hospital, Boston, March 14, from heart disease, after an illness of two weeks, aged 56.

Samuel B. McCleery, M.D. Jefferson Medical College, Philadelphia, 1871, of Lancaster, Pa., died at the general hospital in that city, March 21, from cerebral hemorrhage, after an illness of two weeks, aged 56.

Robert Harris Awl, M.D. Pennsylvania Medical College, Philadelphia, 1842, treasurer of Northumberland County, Pa., in 1864 and 1865, died at his home in Sunbury, March 13, from influenza, aged 85.

John C. Scott, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1870, of St. Catharine, Mo., died at the State Hospital for the Insane No. 2, near St. Joseph, Mo., March 14, from paresis, aged 64.

Moses Richardson, M.D. Jefferson Medical College, Philadelphia, 1856, surgeon of the Forty-second Georgia Infantry, C. S. A., during the Civil War, died at his home in Norcross, Ga., March 15, aged 75.

Gustavus A. Doren, M.D. Berkshire Medical College, Pittsfield, Mass., 1859, superintendent of the Ohio Institution for the Feeble-Minded, Columbus, died at his home in that city, March 23, aged 67.

William Robert Reud, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1869, was found dead in the rooms of his nephew in Boston, February 1, from angina pectoris, aged 69.

Horace D. Allen, M.D. Castleton (Vt.) Medical College, who retired from practice in 1875, died at his home in Rutland, Ill., February 19, from cardiac asthma, after an illness of four weeks, aged 79.

Henry A. B. Klippel, M.D. Missouri Medical College, St. Louis, 1899, of St. Louis, died at quarantine, March 17, from smallpox contracted while attending a patient, after a short illness, aged 29.

William Harris, M.D. Jefferson Medical College, Philadelphia, 1891, once postmaster at Hamburg, Pa., died at his home in that city from pneumonia, March 19, after an illness of one week, aged 62.

George M. Armstrong, M.D. Jefferson Medical College, Philadelphia, 1871, died at his office in St. Louis, March 23, from an overdose of morphin, taken with suicidal intent, aged 58.

John J. Garland, M.D. The University and Bellevue Hospital Medical College, New York City, 1899, died at his home in Syracuse, N. Y., March 20, after a long illness, aged 31.

Eleanor McAllister, M.D. College of Medicine, Syracuse, (N. Y.) University, 1888, of Redding, Cal., died at a hospital in San Francisco, March 19, after an operation, aged 40.

Carter Berkeley, M.D. College of Physicians and Surgeons, Baltimore, of Staunton, Va., died suddenly in the Beverly Club in that city, March 7, from heart disease, aged 67.

Hugo Koethe, M.D. Erlanger University, Germany, 1874, died at his home in Williamsburg, Brooklyn, N. Y., March 16, from heart disease, after an illness of one month, aged 53.

Ivan E. Amilon, M.D. Jefferson Medical College, Philadelphia, 1896, formerly of Philadelphia, shot and killed himself, March 8, at his room in Chicago, while despondent.

Theodore C. Dolan, M.D. Detroit College of Medicine, 1904, of Lima, Ohio, died at St. Mary's Hospital, Detroit, from tuberculosis of the kidneys, March 21, aged 25.

John Brill, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1872, died at Silver Creek, Miss., March 7, from cerebral hemorrhage, aged 50.

William D. Taylor, M.D., who served in the Philippine Islands as surgeon of the California Heavy Artillery, died at his home at Alameda, Cal., Nov. 11, 1904.

George E. Elley, M.D. Bellevue Hospital Medical College, New York City, 1869, died suddenly at his home in West Line, Mo., from heart disease, March 14.

Frank Newell Armstrong, M.D. Rush Medical College, Chicago, 1890, of Richmond, Ill., died suddenly in Morris, Ill., from heart disease, March 13, aged 38.

William E. Treadwell, M.D. Chicago, 1884, of Maple Park, Ill., died in Elgin, Ill., March 17, from cerebral hemorrhage, after an illness of one week, aged 54.

Alexander L. Wilson, M.D. Missouri Medical College, St. Louis, 1884, died at his home in Tulare, Cal., March 17, after an illness of seven months, aged 45.

Richard Hamilton Thompson, M.D. University of Maryland School of Medicine, Baltimore, 1839, died at his home in Washington, D. C., March 21, aged 86.

John F. Hickey, M.D. Medical College of Indiana, Indianapolis, 1871, died at his home in Chanute, Kan., March 14, from cerebral hemorrhage, aged 62.

C. J. Armstrong, M.D. Cincinnati, 1854, died at his home in Bassett, Neb., from general paresis, February 19, after an illness of one year, aged 76.

Edward M. Beardsley, M.D. Medical Institution of Yale College, New Haven, Conn., 1845, died at his home in Monroe, Conn., March 12, aged 82.

James H. Stanton, M.D. St. Louis College of Physicians and Surgeons, 1898, died March 22 from typhoid fever at his home in Prairie du Chien, Wis.

George F. Corse, M.D. University of Maryland School of Medicine, Baltimore, 1864, died at his home in Gardenville, Md., March 23, aged 65.

Edwin Oliver, M.D. University of the Victoria College, Cobourg, Ont., 1866, died recently at his home in Sarnia, Ont., and was buried March 14.

John P. Lombard, M.D. New York University, New York City, 1888, died at his home in Boston, March 21, from heart disease, aged 44.

C. Edwin Wright, M.D. Pennsylvania, 1883, of Philadelphia, died at Deland, Fla., March 16, from cerebral hemorrhage, aged 58.

Willis L. Bartholomew, M.D. New York, 1886, formerly of Canastota, N. Y., died at Middletown, N. Y., Nov. 25, 1904, aged 40.

William F. Bland, M.D. Jefferson Medical College, Philadelphia, 1849, died at his home in Baltimore, Dec. 25, 1904, aged 77.

William N. Bonesteel, M.D. Albany (N. Y.) Medical College, 1863, died at his home in Troy, N. Y., March 20, after a long illness.

Hudson B. Stevens, M.D. Starling Medical College, Columbus, 1854, died recently at his home in Columbus, Ohio.

John Dow Lance, M.D. Ohio, 1877, died at his home in Providence, R. I., March 17, aged 54.

J. C. Bates, M.D., died recently at his home in Silver City, Ark.

Book Notices

Studies in General Physiology. By Jacques Loeb, Professor of Physiology in the University of California. The Decennial Publications. Second Series. Vol. XV. Parts 1 and 2. Cloth. Pp. 782. Price, $7.50 net. Chicago: The University of Chicago Press. 1905.

The decennial publications of the University of Chicago are issued in commemoration of the completion of the first ten years of the university's existence, and the two volumes before us contain Professor Loeb's articles on various topics in general physiology. Many of the papers here collected—indeed, the majority—originally appeared in German. These have been translated. Probably to the regret of many, joint papers by Professor Loeb and others have been omitted. As it is, we have here within easy reach and in convenient form the choice products of this original investigator, in a new field, up to the time that he left the University of Chicago (1903). All progressive medical men, especially teachers, who have not made themselves familiar with Loeb's investigations as the results have been published from time to time, will be gratified to learn that his scattered publications are now easily accessible. This is not the place to review critically a collection of papers the general nature of which may be assumed to be familiar to many of the readers of The Journal. The leading idea that permeates all the work is control of life phenomena. The agencies that determine the direction of motion in animals are considered in one series of papers. In order to find some means of control of the phenomena of regeneration efforts were made, and successfully, to cause one organ to grow at will in the place of another. Again, in the case of the problem of fertilization, the first step toward its solution has been taken by the production by various means of larvæ from the unfertilized eggs of various classes of animals. The fundamental character of the problems that Loeb has attacked with so great success by physico-chemical means gives to his work a significance for pathology and pharmacology that will be appreciated more and more as medical students and physicians become acquainted with the principles involved. Undoubtedly these volumes (which under the circumstances reflect great credit on the university under whose auspices they are issued) will serve to draw the interest of teachers in medical colleges and of educated physicians in general to this new field of physiologic investigation.

Universal Cyclopedia and Atlas. Charles Kendall Adams, LL.D., President of the University of Wisconsin, Editor-in-Chief, assisted by a corps of associate editors, composed largely of eminent specialists in Europe and America. A newly revised and enlarged edition. Rossiter Johnson, Ph.D., LL.D., Editor of Revision. Illustrated with color, plans, plates and engravings. Complete in twelve royal octavo volumes. Half morocco. Price, $84.00. New York: D. Appleton & Co 1904.

This is one of the best encyclopedias now obtainable. It has been thoroughly revised and seems, as far as we have examined it, to have been brought up to date. We find the *x*-ray, the Becquerel ray and other late matters thoroughly treated. Medical science is represented by special articles and by the supervision of eminent authorities; among the latter we notice Drs. H. C. Wood, H. A. Hare, Leonard Pearson, George A. Piersol, W. T. Councilman, G. E. de Schweinitz, Guy Hinsdale, St. John Roosa, Seneca Egbert, B. C. Hirst, Roswell Park, Henry M. Hurd, etc. We note as one example that the article on "Comparative Anatomy" covers twenty-five pages; another example is the subject of "Bacteriology," which is described in five pages, including an excellent colored plate. This has been written by Drs. A. C. Abbott and J. S. Billings, and is an excellent presentation. The encyclopedia contains biographies of eminent men in medicine, as well as of those in other walks in life. Turning from the medical side—the encyclopedia deserves a place in the physician's library, because of its general information on all subjects that a book of this kind conveys. The physician will be able to consult this with satisfaction and convenience, in looking up the various questions that come to him either on the borderline of medicine or entirely apart from it. The paper is excellent; the print is clear, each heading is in black type which stands out clearly, and the illustrations, especially the colored plates, add greatly to the value of the work. We wish to call particular attention to the bibliographies, which are given in connection with all the important subjects, and which enable the reader to pursue the study of the subject elsewhere. We can thoroughly recommend this work.

MANUAL OF ROE[illegible] Hilfsbuch. Eine [illegible] [illegible] die wichtigsten [illegible] Anhang über Ra- [illegible] 33 Abbildungen. Ingenieur Friedrich Dessauer. [illegible] Price, 3.50 marks. Würzburg, A. Stuber's [illegible]

Dessauer's name is frequently seen in medical journals signed to articles on the technic of Roentgen ray treatment. Some of the articles were written in collaboration with physicians. They are here collected, with others published elsewhere, all illustrated. Among them are the following: "The Diaphragm Process and Its Combination with Orthodiagraphy," "Sources of Electricity for Roentgen Work," "Interrupters," "Spark Length," etc., and a theoretical study of radioactivity. He regards the radioactive substances as bodies of extremely high atomic weight whose atoms have lost their stability in the existing phase of the development of the earth. The electrons of their atoms are at present in a transitional stage.

Isthmian Sanitation

THE PANAMA CANAL MISMANAGEMENT.

Reply of the Commission to the Charges Made in the Report to the Government by Dr. Charles A. L. Reed.

At the request of the Isthmian Canal Commission we print in full its reply to the report of Dr. C. A. L. Reed, chairman of the Committee on Medical Legislation of the American Medical Association, which was printed in THE JOURNAL, March 11, page 812.

WASHINGTON, D. C., March 16, 1905.

Hon. William H. Taft, Secretary of War.

SIR:—The commission has given such consideration to the letter addressed to you under date of March 2, 1905, by Dr. Charles A. L. Reed as time that could be spared from the urgent duties of the office since its receipt on March 7 has permitted.

The letter is so full of misstatements that it has been thought advisable to answer it at considerable length even though the tone thereof should be sufficient evidence that it is the product of a strangely biased mind.

The Health Department was preliminarily organized in May, 1904, a few days after the canal properties came into possession of the United States. The permanent organization of this department was under consideration during the stay of the commission on the Isthmus in the summer of 1904, during all of August, having been adopted on September 2. Commissioner Grunsky took a special interest in the affairs of the Health Department and in the sanitary work on the Isthmus and assisted the medical staff in planning the permanent organization, being in frequent conference with the physicians and submitting to the commission the result of the deliberations. It was at once apparent to the commission that it would not be possible to accept in their entirety the recommendations and suggestions made by the chief sanitary officer, which included such matters as the immediate taking over and management by the United States of the San Tomas Hospital, one of the public institutions of the Republic of Panama, located in Panama; the taking over and management of the poorhouse of Panama called Asilo de Bolivar; the taking over of the Lazarette or home of lepers.

Dr. Reed's assertion that "much of the report on a plan of organization was formulated over the respectful protest of the medical men" is without any foundation whatever. Modifications of the suggestions submitted by the medical staff were made from day to day until a plan acceptable to both the commission and to the medical staff was worked out which must stand on its merits. It may at once be stated that one of its chief merits lies in its elasticity. The facilities immediately provided and to be provided were those foreseen to be necessary within the time during which plans of the canal were to be under consideration, and during which there would be only a moderate force at work on actual canal construction.

In order that the character of modifications of the scheme as submitted by the chief sanitary officer may be understood, one illustration may suffice. He had suggested the establishment and equipment of twenty emergency hospitals (these being apart from the hospitals at Ancon and Colon) with twenty beds each, and the necessary staff of employes to be located along the line of the canal, that is, one every two miles between Panama and Colon. Without venturing to pass on the ultimate necessity for this number of emergency hospitals, it was decided that it would be better to establish only three at the outset, each with less than twenty beds. These were to be located at centers of population and to be enlarged and others were to be established and equipped as should later be found necessary.

The following from the report on the plan of organization refers to this matter:

> Emergency hospitals will be required along the line of the canal as soon as large numbers of laborers are concentrated at the points where the work is of the greatest magnitude. At each of these hospitals a physician should be stationed. Each emergency hospital should be suitably equipped for emergency service and should have combined with it a dispensary.
>
> It is assumed by the chief sanitary officer that there will be need ultimately for twenty of these hospitals, with twenty beds each, but after careful consideration of the matter it was decided that necessity does not exist for more than three at present, and that others can be added as required.

Other modifications of the submitted scheme of a like character were made in a like spirit, and in every case the matter involved was fully discussed with and concurred in by the medical staff.

The joint participation of all the commissioners in the formulation of the plan of organization is sufficiently evidenced by the adoption of the report on this matter without modification. The organization of the Department of Health, as perfected, except possibly the Board of Health feature, which originated with the commission's general counsel, seemed to be highly satisfactory to the chief sanitary officer and his associates and met with their entire and full concurrence.

The spirit which pervades the plan of organization is well illustrated in the first paragraph of the report thereon which was subsequently adopted:

> After repeated conferences with the Chief Sanitary Officer, Dr. Gorgas; Director of Hospitals Dr. Ross; the Superintendent of Ancon Hospital Dr. LaGarde; Chief Quarantine Officer Dr. Carter; Chief Sanitary Inspector of the Canal Zone Mr. LePrince; the Superintendent of Colon Hospital Dr. Spratling, and the Supervising Architect Mr. Johnson, it has been agreed to be desirable to perfect an organization of the Department of Health as herein set forth, which will be sufficiently elastic to permit of expansion or contraction as conditions on the Isthmus may, from time to time, require. The needs of the first year of service and the conditions prevailing during the time of preparation for canal work on a large scale were, therefore, used as a guide in determining the scope of the work to be done and the personnel which should be authorized.

As Dr. Reed comments unfavorably on the commission's department of material and supplies, it should be briefly stated that this department was created for the purpose of receiving, storing, caring for and issuing supplies and materials, including those for the medical department and for the care of machinery not in use. It naturally works in conjunction with the commission's purchasing and shipping department. Dr. Reed says that in the resolution creating the material and supplies department nothing is said about the Sanitary Department, thereby giving the impression that by some oversight a right of inspection accorded other departments has been denied to the Sanitary Department as such, and that the Health Department will be hampered in securing suitable medicines and supplies. Dr. Reed should have continued his quotation by adding the following, which appears in the printed proceedings of the commission's meeting of Aug. 28, 1904:

> In the organization of a general purchasing department, provision could well be made for at least one competent clerk who is familiar with the requirements of sanitary and hospital service. Purchases of medical supplies and instruments could be just as carefully made as through an independent office. All supplies and medical stores should be consigned to the general storekeeper of the commission, and should by him be at once transferred to a subdepartment and possibly a separate storehouse, where they could be kept apart from other stores.

The commission, in the making of its first purchases for the Health Department, gave the medical staff authority to purchase in open market whatever was necessary. In the making of subsequent purchases it called on Col. Turrell, medical purveyor, U. S. A., at New York, for assistance, chiefly with a view to the issuance of clear specifications for supplies and medicines, and still later an arrangement was made with Surgeon-General Wyman, of the United States Public Health and Marine-Hospital Service, under which all requisitions for medicines, surgical instruments and supplies are referred to that department and are filled by it.

It was that department which made the purchase of the *x*-ray outfit, in reference to which Dr. Reed makes statements that are quite erroneous. He states that a request was made in Washington by the Health Department's expert to be allowed to select the Crookes tubes of an *x*-ray outfit, and that this request was peremptorily refused. This statement evidences either woeful ignorance or a willful misstatement of fact, and the Doctor tries to make matters appear still worse by stating that although *no x*-ray outfit had reached the Isthmus, the salary of the expert who had been specially employed to do *x*-ray work in Ancon goes on. This expert is Dr. Herrick, who is the pathologist at Ancon Hospital and who will have charge of such instruments and appliances as are required in the laboratory, including the *x*-ray outfit. Full service is being rendered by Dr. Herrick in his capacity as pathologist for the salary which still goes on.

No request to assist in the selection of the *x*-ray outfit or of the Crookes tubes was denied; on the contrary, Dr. Herrick was told that any service he desired to render in the selection of such apparatus or of microscopes would be welcomed by the commission. Dr. Herrick, in November, 1904, came to the Washington office with a letter from Dr. LaGarde, superintendent of Ancon Hospital, from which the following is an extract:

> Mr. Herrick leaves here to-morrow for a much-needed rest. He has aided me more than any one in the organizing of our important hospital. I desire very much that he should be consulted by the purchasing agent in New York in the purchase of microscope, *x*-ray and operating-room supplies that are costly and that must be of certain standards and quality to suit our needs. No one but an expert like Herrick can intelligently do such purchasing, and I write to ask if you will be kind enough to give him a letter to Mr. Anderson, explaining the necessity of such advice, or, in fact, let Herrick do the soliciting himself.

This letter, addressed to the chairman of the commission, was presented in person to the acting chairman, and Mr. Herrick was told that the commission would be glad to accede to the request of Dr. La Garde and requested his assistance in the matter. Dr. Herrick was informed that the matter of soliciting proposals was no longer in the hands of Mr. Anderson. He was referred to Mr. Redfern, the chief clerk of the commission, in direct charge at that time of the filling of requisitions. In this connection Mr. Redfern, on being requested to state what happened thereafter, says, in reference to the purchase of microscopes, apochromatic-objectives and an *x*-ray outfit, that these comprised one dissecting microscope, Leitz No. 44; three ordinary microscopes for hospital use and one Zeiss microscope complete beside the objectives, compensating eye-pieces and a Spencer Lens Company's new No. 4 stand. He states that the requisition for these instruments were being handled at the time of Dr. Herrick's visit to Washington, that Dr. Herrick was referred to him (Redfern) by the acting chairman, and that he (Redfern) was instructed to consult Dr. Herrick and obtain his views as to what he desired to do in the matter before making any purchases or definite arangements in regard to the Zeiss microscope and *x*-ray outfit. Mr. Redfern further says that he was present at a part of the interview between the acting chairman and Dr. Herrick, and that Dr. Herrick expressed a desire to superintend, to a more or less degree, the purchase of the instruments referred to; that Dr. Herrick called on him (Redfern) on the following day (as he remembers) and was requested to give the matter of the purchase of the microscope and the *x*-ray outfit his attention; that for personal reasons it was not convenient for Dr. Herrick to give these purchases the required attention; moreover, that even in the case of the *x*-ray outfit there were several makes equally as good as the one specified, any one of which would suit him. Mr. Redfern further states that the dissecting microscope, Leitz No. 44, was bought from Ernest Leitz of New York, after having referred the matter to the Public Health and Marine-Hospital Service for advice. The three ordinary microscopes were purchased for the commission by the Public Health and Marine-Hospital Service, the style purchased being the "Continental," and the firm from which they were purchased was Bausch & Lomb of New York. The apochromatic objectives, the Zeiss microscope and the *x*-ray outfit were bought by the Public Health and Marine-Hospital Service. It was understood that these instruments would be tested for the Public Health and Marine-Hospital Service by the director of the hygienic laboratory of that service at Washington.

It is stated by Dr. Reed that the commission substituted a number of worthless microscope objectives for others carefully specified. The purchase of these has above been explained. The commission has at no time authorized the substitution nor the acceptance of any "worthless" instruments.

Dr. Reed says that one medicine is substituted for another in practically every requisition for medicine that has reached the hospital. The commission knows of no such substitution. It has been aided, as explained, by Colonel Turrell, the medical purveyor for the U. S. A., and by the Public Health and U. S. Marine-Hospital Service, and it has no grounds for assuming that either of these departments should have sanctioned the purchase of medicines other than those asked for, nor have its medical officers ever reported such a substitution.

The statements of Dr. Reed that a request to have an expert select Crookes tubes was denied; that no *x*-ray outfit was purchased; that worthless apparatus was substituted by the commission for that specified; that the commission foisted remedies on the medical service other than those specified, are all absolutely false.

Relating to Dr. Reed's statement that the commission wants cheap physicians on the Isthmus, only $50 per month being allowed for the internes, the fact is that graduates from medical colleges without experience are useful as internes in the hospital organization on the Isthmus as they are in hospital organization in the United States. In the United States they serve a year without pay. It was thought proper to allow them transportation to the Isthmus from a United States port and to allow them $50 per month during their year of service, and to return them free of expense to the United States at the end of the year or in case of disability due to sickness. Should it be found that an interne desires to remain in the Isthmian service, the assignment to further duty carries with it pay of at least $125 per month. To the above compensation for internes there is added quarters, board and some laundry. Nor is there any reason why a physician promoted from an interneship should not, if he is deserving, be recommended at once for higher pay than $125 per month, which has been named as a minimum. It is true that internes are expected to remain a year to entitle them to free return transportation, but after six months of satisfactory service they are entitled to any reduced rates of transportation available to the commission ($25 to New York or New Orleans). That the commission does not seek cheap medical service is further answered by quoting the salaries fixed six months ago for such service: Chief sanitary officer, $7,500 per year; executive officer in the office of the sanitary officer (a physician), $2,400; director of hospitals, $7,000; superintendent of Ancon Hospital, $6,000; pathologist and *x*-ray specialist at Ancon, $4,000; physiologic chemist at Ancon, $3,000; two other physicians at $2,400; and two at $1,500; and internes at $600: superintendent of Colon Hospital, $4,000; surgeon and pathologist at Colon, $3,000; three other physicians, $2,400; internes, $600; physicians at emergency hospitals along the line of the canal, $2,400; at dispensaries, $1,800; chief quarantine officer, $6,000; other quarantine officers, two at $3,500; two at $2,400; Panama health officer, $3,000; assistant health officer, $1,800; Colon health officer, $2,400. In addition to this all physicians are allowed quarters or in commutation of quarters 15 per cent. of their pay, and the commission's principal representatives on the Isthmus are allowed carriages.

In the matter of director of hospitals, which you are told was abolished, there has been no abolishment of the office, although the commission did request from its chief sanitary officer after the resignation of Dr. John Ross, because of ill health, a suggestion for the reorganization of his office. which reorganization should provide for an assistant chief sanitary officer in lieu of the director of hospitals. In view of the fact that the laws of the canal zone creating the office of director of hospitals can no longer be amended by the commission, it is not likely that further steps in this matter will be taken.

The non-allowance of twenty sanitary inspectors to serve in the canal zone under the chief inspectors was one of the modifications of the suggestions of the chief sanitary officer already alluded to. On this subject the report on the plan of organization may be quoted:

> No work to be done by the sanitary force on the isthmus is of greater importance than that which, by restricting the breeding of anopheles and stegomyia mosquitoes, will reduce the danger of malarial and yellow fever infection. This work is now in charge of the chief sanitary inspector, under whom there are four assistant inspectors, more being at once required. . . . An efficient beginning can be made with eight inspectors in the canal zone, and these should be provided.

These were provided, together with sixteen sanitary foremen, their number to be increased from time to time as shown to be necessary by experience. To this time no request for an increase has been made by the officers whose experience would guide the commission in such matters.

It is stated by Dr. Reed that screens were asked for for all the buildings in the canal zone; that the commission concluded this to be a totally unwarranted expense and eliminated the proposition. The commission has reached no such conclusion; moreover, it feels itself under obligation not only to provide screens for all buildings owned or controlled by it, but would like to see all buildings where screens would be of any service suitably screened.

The original proposition of the chief sanitary officer to construct screens entirely around the verandas or porches surrounding the Ancon Hospital buildings was modified, as stated by Dr. Reed, but with the consent and full approval of the medical staff, so far as screening only that part of the galleries which will be in use by the patients is concerned. The boarding below the railing or some other means of protecting the screening against accident, remains as a suggestion, and the commission has no information of its final acceptance or rejection by its representatives on the Isthmus.

The statement made by Dr. Reed that such a proposition would carry about ten times the expense of screening is in error. The reduction of aggregate cost resulting from the plan of screening as adopted would amount to many thousands of dollars and would place a large amount of screening under the protection of porches where increased length of serviceability is to be assumed. The cost of boards in the place of screens, instead of being ten times greater, should be compared on the basis of about six (6) cents per square foot for screens as against three (3) cents for boards, apart in each case from the cost of placing these materials.

In the matter of compensation allowed its clerks, which Dr. Reed criticises, the commission has endeavored to secure a fair and uniform classification in its several departments, and the salaries fixed were the outcome of long discussion and deliberation, the intention being to fix salaries for all such service at about 25 per cent. in excess of the amount which like service would command in the United States.

The Doctor states in this connection that "Colonel Gorgas asked for a chief clerk at $1,800, with the object of getting a man who had had experience with him in Cuba; he was allowed only $1,500, for which he could get only an inexperienced man." The salary fixed in the plan of organization for the chief clerk of the chief sanitary officer (see page 171 of the printed proceedings of the commission) is $1,800; the salary of the clerk in the office of director of hospitals called by courtesy chief clerk is $1,500; the salary of the chief clerk of Ancon Hospital is $1,800 per year.

It should be stated that the fixing of salaries of the officers of the Health Department has received careful consideration by the commission. Salaries, in connection with all other matters relating to the organization of the Health Department, were discussed and agreed on in conference with the medical staff and they remain subject to revision. There are, in fact, frequent changes, and it is needless to say that a change invariably means increase. Some of these salaries have hereinbefore been enumerated.

In the matter of the use of movable vessels for night soil, it may be stated that those called for have been purchased. On this subject, after discussing the advantages and disadvantages of disposal by water carriage in sewers as against the use of a bucket system, Dr. Gorgas, under date of January 7, concluded:

> I would therefore recommend that in general, for the strip, the bucket system be adopted, and that the Sanitary Department be authorized to install the same as necessity arises.

Hereon Governor Davis took up the question, writing under date of January 17 among other things:

> It seems to me that it should not be a very difficult matter to arrange that each house, or group of two or three houses, should be provided with a small privy, constructed of boards, over a pit dug in the earth, and provided with steps and seats, and that the sanitarians should inspect these privies occasionally and see that they are kept in proper condition and removed from time to time to other pits when it shall appear necessary.

The commission thereon, at its meeting Feb. 4, 1905, adopted a report of its committee on sanitation, which was sent to the Isthmus for further comment by the governor of the canal zone and the chief sanitary officer.

Referring to this resolution, Governor Davis, under date of February 25, writes:

> It will be observed that Colonel Gorgas sees no necessity for any action by the commission in this matter, and I have not, myself, been able to think of any phase of the case that requires such action.
>
> Since my letter of January 17 the subject of the use along the canal line of privies and privy vaults for night soil, and before the receipt of the secretary's communication now at hand, was taken up by me with Colonel Gorgas and Mr Le Prince, and I personally made a sketch of a privy vault, or pit that I thought would meet the case, and the instructions I gave to prevent the vault or pit from being flooded were almost exactly the same as those suggested in the memorandum of the committee on sanitation. . . . The commission will be kept advised as to the experience in this matter, and if any necessity arises for action by resolution or in a legislative way, the fact will be made known.

On the same subject, under date of February 24, chief sanitary officer, Col. W. O. Gorgas, writes:

> . . . In my opinion no special regulation by the commission is necessary for carrying out the views expressed in this resolution. . . . The scheme seems to me good and to fulfill the requirements. If on trial it is not found satisfactory, I shall report the circumstances to the proper authorities.

Dr. Reed tells you that the establishment of a convalescent hospital on the Island of Taboga with a physician and a head nurse was refused. Taboga is located about twelve miles down the bay of Panama, and the use of the island as a hospital will involve the keeping of a suitable steamer in service. It should be stated that the commission resolved, in August, 1904, as follows:

> The large two-story structure on Taboga Island, usually referred to as the "Convalescent Hospital," is suitable for a convalescent station to be made use of whenever the hospital facilities at Ancon prove inadequate. There is no immediate need of providing a medical staff for this station. It is estimated that $8,500 will be required to put the building in a suitable condition of repair.

This expenditure was authorized by resolution of Sept. 2, 1904, and the commission has, since that time, on recommendation of the chief sanitary officer, authorized the furnishing and use of this station by canal employes who need a change of air and of surroundings to recuperate their energies.

Another of the Doctor's misstatements relates to Miraflores Hospital. The establishment of this hospital was authorized immediately it was asked for. The transfer of personnel was authorized and no obstruction has been interposed by the commission to the filling of any vacancies created by such transfer.

You are told by Dr. Reed that the commission declined to give the chief sanitary officer some opportunity to exercise his judgment as to qualification of personnel and quality of material furnished his department. The present medical staff is of his own selection. He has been restricted only by civil service regulations. The method followed in purchasing medicines and supplies has already been explained.

You are told that the Health Department is hampered in its efforts to suppress yellow fever. In this connection it is only necessary to call attention to the fact that materials for use in disinfecting have been purchased as required, the following aggregate amounts of materials principally used purchased and forwarded:

14 tons of insect powder in 16 shipments
52 tons of sulphur in 17 shipments.
2 tons of sulphate of iron.
23 tons of chlorid of lime.
500 pounds of sulphate of copper.

Regular shipments of insect powder and of roll sulphur are being made and will be continued until notice is received from the Sanitary Department that they are no longer needed.

The commission has at all times met every request for such material promptly. If some allowance be now made for misunderstandings as to what was required, and, on the other hand, for some duplication of purchases resulting from the use of the cable, it must be apparent that any difference in the amount of a single shipment from the amount named in the requisition should not be used as a reflection on the earnest effort of the commission to do effective sanitary work.

The following two letters from the chairman of the commission, one under date of Jan. 5, 1905, to General Davis, the other under date of Feb. 14, 1905, to Mr. E. C. Tobey, chief of Material and Supplies Department, will sufficiently illustrate the attention given to such matters.. The addresses and signatures being omitted, these letters are as follows:

> Sir:—I this morning received your cable of yesterday as follows:
> Health Department will systematically fumigate Panama; require 2,000 pounds insect powder weekly for six weeks; present supply exhausted January 15. Can I depend on required shipments?

To which I replied:

> Will send 2,000 pounds insect powder weekly.
>
> In this connection I have to inform you that the steamer sailing yesterday took two orders of disinfecting material—one for eight (8) tons of rolled sulphur and one (1) ton of insect powder, and the other for 5,000 pounds of rolled sulphur and 4,000 pounds of insect powder.
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> The 2,000 pounds of insect powder which you request weekly for six successive weeks will be forwarded you beginning Tuesday, the 10th instant.

And the letter to Mr. Tobey:

> Dear Sir:—Referring to cable sent by General Davis, received at this office on the 5th day of January, 1905, requesting that six weekly shipments be made of insect powder in 2,000 pound lots:
>
> I wish to bring to your attention that under this order the shipments would cease on the 14th day of February. To guard against possible chance that the supply should become exhausted, I have this day directed that two more consignments of 2,000 pounds each be made, bringing the total quantity up to 16,000 pounds, and to the 28th day of this month. On receipt of this letter, should the conditions warrant the continuing of these weekly shipments, you are directed to cable such request.

In further evidence of the earnest desire to facilitate the work of the Health Department in preventing and suppressing epidemics, the commission enacted the following in Act No. 8 of the Laws of the Canal Zone:

> But in case of emergency created by threatened or imminent danger to the public health, extraordinary expenditures by the Board of Health may be authorized by the governor of the Canal Zone.

Under this authorization medical and sanitary supplies have been and can be purchased as required.

The commission, on Sept. 2, 1904, also passed the following resolution:

> *Resolved*, That in case of any great public calamity, emergency or urgent necessity, the member or members of the commission on the Isthmus of Panama be, and they hereby are authorized to act for the commission, taking such measures as may be necessary to meet the conditions as they arise, and to purchase materials and to do any work or make any expenditures which they deem necessary to avert such calamity or to meet such emergency and urgent necessity.

You are told by Dr. Reed that the commission declared that screens for hospitals along the line of the canal were unnecessary. This is also a misstatement, the exact reverse being the case.

Building repairs are made under the direction and supervision of the chief engineer. The commission has not been advised that this arrangement is the cause of any embarrassment. The commission has not, as Dr. Reed desires that you should believe, required that estimates should first be submitted to the commission before repairs to buildings are made. The making of these repairs rests with the commission's representatives on the Isthmus.

The commission has not denied a request for a house at a quarantine station. Full authorization for all buildings asked for for the quarantine service has been given.

The commission maintains a laboratory at Ancon Hospital. Even if the commission were clear that the establishment of a laboratory for purely scientific research would be a proper feature of expenditure, it does not believe the time to have come for establishing one and denied a request for such laboratory. Dr. Herrick is the commission's pathologist at Ancon Hospital and he is the *x*-ray specialist and it is expected that at the Ancon Hospital laboratory for the present such scientific work as may be necessary will be done.

The keeping of the Ancon Hospital ambulance at the section stable instead of at a separate hospital stable is referred to by Dr. Reed as making it impossible to get the ambulance on ready call at times of an emergency. No arrangement for stabling the ambulance has been made which does not give the hospital officials complete control over its movements. It should be stated in this connection that the section stable is on a tract of land as fully under the control of the commission as the hospital site in contact therewith and less than 200 yards from the hospital buildings and connected by telephone. The combination of scattered stables into one establishment is a feature of efficient administration.

It is charged by Dr. Reed that the commission's hospitals are opened to all the world. No other answer seems necessary than a reference to the plan of organization and to the health regulations as set forth in the Laws of the Canal Zone (Acts Nos. 8 and 9). The medical staff should have power to order into hospitals all persons suspected of being ill with infectious or contagious diseases, and this has been given. The commission foresaw that restrictions would be necessary to prevent competition by the hospitals with physicians in private practice. The admission of patients as pay or charity patients is only permitted where the hospital authorities determine such admission to be desirable. It was not intended that any sick person not an employe of the commission should be admitted on mere application and, so far as the commission has been advised, no other construction has been placed on the paragraphs of the plan of organization relating to admission of patients.

To establish a proper relation between the commission's hospitals and their medical staffs on the one hand and the private physicians practicing on the Isthmus on the other, the commission will always be ready to take suitable action.

It has recently, on receipt of a suggestion relating to this matter, passed the following resolution, which was suggested by the chief sanitary officer:

> *Resolved*, That any pay patient can employ any physician desired by such patient, and such physician can have access to such patient and use of all supplies and conveniences of the hospital, under regulations to be prescribed. A charge of not less than \$5 and not more than \$10 will be made for the use of operating room.
>
> In case a pay patient in a hospital elects to have a physician employed by the commission to attend him or her, the superintendent shall charge for such attendance or surgical operation in accordance with the scale of fees, to be agreed on between the chief sanitary officer on the one hand, and the legally qualified medical men of Panama and Colon on the other.

This resolution was adopted at the request of Dr. Gorgas.

The commission is by no means certain that it will not soon require further modification, which will be made when asked for, but for the present accepts the view of Colonel Gorgas, who, under date of Dec. 6, 1904, referring thereto, says:

> I have discussed this with a committee appointed to represent the physicians (referring to the medical profession of Panama), and they express themselves as being satisfied with the arrangements. This will give them access to the hospital and the advantages of the hospital, and they will make such arrangements as they please with their patients, just as if the patient were in a hotel.

In reference to the admission of all the world to the hospitals, it may be stated that the views of Colonel Gorgas were so extreme in August, 1904, that his original suggestion included the taking over and management, as already stated, of the hospitals and poorhouse of the Republic of Panama.

Dr. Reed is again in error when he says that it was "made a part of the Laws of the Canal Zone 'that surgical operations shall be charged for according to their importance and to the financial ability of the patient to pay, but no charges in excess of $50 shall be made without the approval of the director of hospitals.'" This is a quotation from page 166 of the minutes of the proceedings of the commission; it forms no part of the Laws of the Canal Zone. It has, as just stated, been already changed, based on the experience and recommendation of the medical staff.

The purpose of the requirement that a charge be made under certain circumstances for attendance on sick at their homes was to encourage the persons entitled to hospital treatment and to free medical treatment, to seek medical advice at the dispensaries and at the hospitals, thereby reducing the number of outside calls to be made by the commission's physicians. The charge for such attendance is in no sense, as Dr. Reed would have you believe, a charge in competition with private practitioners, or in compensation for the services rendered. He has quoted only enough to mislead, from the report on the plan of hospital organization. The full statement in that report relating to this matter as taken from the printed proceedings of the commission is as follows:

> Visits made by physicians to the residence of any person entitled to free hospital treatment, or to the residence of a railroad employe, or to the residence of any other person entitled to treatment at the hospital at a fixed daily rate of pay, should be charged for at the rate of one-half dollar for each visit, but no such charge is to be made for emergency calls nor in the case of persons entitled to free hospital treatment until after the person has been ordered into a hospital.

It is true that the commission has declared that all money realized at hospitals from charges for board, medical attendance, surgical operations and the like, and from visits at residences, should be considered public funds. This is covered by the Laws of the Canal Zone in the following words:

> All money collected for the United States by the Department of Health, or any of its several branches or services, or by any officer or employe thereof, shall be turned over to the government of the Canal Zone as soon as practicable after the date of its receipt.

Two of the members of the present commission have repeatedly visited the Isthmus in the last five years, and they know that the Isthmus during this entire time was never free from yellow fever. Why does Dr. Reed now venture such a statement referring to the last days of June, 1904, as the following: "Panama was then apparently free from yellow fever"?

Yellow fever being still epidemic in the city of Panama the commission has taken vigorous measures to stamp it out. It is considered of prime importance to exterminate the stegomyia mosquito in Panama. The commission at once recognized the importance of bringing into Panama a wholesome water supply and no time has been lost in selecting a source of supply and purchasing material. Only after water is thus made available can the use of water containers, the favorite breeding place of this particular mosquito, be prohibited.

In the meanwhile the commission appointed a health officer for the city of Panama, its Board of Health took charge of all suspected cases of yellow fever wherever found, and provision was made to have funds in any amount at its disposal in case of an emergency as already hereinbefore stated.

It is true that the treaty between the United States and Panama gives to the United States certain rights in the matter of prescribing and enforcing sanitary regulations in the cities of Panama and Colon. The following is from Article VI of the treaty:

> The Republic of Panama agrees that the cities of Panama and Colon shall comply in perpetuity with sanitary ordinances, whether of a preventive or curative character prescribed by the United States, and in case the government of Panama is unable or fails in its duty to enforce this compliance by the cities of Panama and Colon, with the sanitary ordinances of the United States, the Republic of Panama grants to the United States the right and authority to enforce the same.

The commission gave its Health Department a temporary organization by formal action at its session of May 8, 1904. At this meeting "the chief sanitary officer and the director of hospitals, in addition to other duties, were designated as the Health Board for Colon and Panama," and the chief sanitary officer took such steps as he thought justified to improve the sanitary conditions in these cities. He asked for and was given certain powers in this matter by the government of the Republic of Panama and continued to exercise these until the scheme for a permanent organization of the Health Department took definite shape. About the same time the commission adopted sanitary rules and regulations for the cities of Panama and Colon and quarantine regulations for the ports and harbors of these cities.

At the commission's meeting of Sept. 2, 1904, the chairman was directed to transmit a copy of these rules and regulations to the proper authorities of the Republic of Panama with the request that such action be taken by competent authorities as might be necessary to give the rules and regulations the force of law. This was done and suitable action was subsequently taken by the government of Panama.

Not until January, 1905, was the commission advised by the authorities of Panama of its inability to properly enforce these regulations and the commission immediately took full charge of the work of cleaning and sanitation in Panama. In this matter the commission acted up to the entire limit of its authority as is shown by the following extract from a decision of the *comptroller* of the United States Treasury in which he says:

> It requires no extended argument to demonstrate that until Panama confessed its inability or failed to execute these regulations the Government of the United States was not authorized so to do, and not being authorized to execute them could not legally, under such circumstances, pay for their execution.

It should be further stated in this connection that a health office for Panama, with a physician in charge, an assistant, two clerks and three inspectors are included in the Health Department organization, and were stationed there long before the United States took charge of the enforcement of health ordinances. A similar staff except the assistant health officer was provided in the plan of organization for Colon. Dr. Reed lays great stress on the subordination of the chief sanitary officer to the seventh degree, enumerating even the President and a single member of the commission to accomplish this subordination. In the discharge of his duties as a sanitary officer Dr. Gorgas has been absolutely free and has absolute freedom of action.

The providing of water for Panama received the attention of the commission in April, 1904, before the canal properties had passed into possession of the United States, it having been resolved on April 12 that parties be organized as soon as practicable for the doing of the following field work: " . . . Surveys for water supply and sewerage systems for Colon and Panama."

Under this resolution an engineer of experience was engaged and entered on his duties as soon as he could arrange his private affairs, on June 20, 1904. His duties included the design of water works for Panama, sewers for Panama, and water works and sewers for Colon.

The cleaning of the streets, including the disposal of night soil, was placed in the hands of Colonel Gorgas, with full powers, so far as the commission could confer them, on May 8, 1904.

Compare also this statement of Dr. Reed with the facts. He says, referring to the water works for Panama:

> Mr. Wallace had drawn the plans and specifications in July previous and had taken care to specify only such pipe as manufacturers keep in stock, and that could, therefore, be procured without a moment's delay.

The facts are that the recommendation of the chief engineer that the selection of the Rio Grande as a source of water for Panama be approved, bears date August 6 (not July), and that the specifications for pipe submitted by him bear date of August 15, and were approved by the commission on August 19, as submitted.

The specifications as prepared had no reference to stock on hand by manufacturers. All delay in the delivery of this cast-iron pipe has been due to a default of the contractor in making shipment. The pipe was manufactured in time for shipment as required by contract, but the second (final) installment did not get off within the contract time.

The Doctor's ignorance as to the forms of water pipe and their method of manufacture has led him into a silly statement as to their details. The commission never asked the chief engineer for any explanation as to eastern or western patterns, as they exist only in the Doctor's imagination.

Every reasonable step is being and will be taken to reduce malaria. To this end an efficient sanitary corps for the canal zone has been organized and a vast amount of good work has been accomplished. Any one who knew the Isthmus before May 4, 1904, and who visits it now, can testify to the changed conditions. Ponds were drained and oiled, ditches constructed and cleaned out, and brush has been cut out, improving the surroundings of the several clusters of buildings in the canal zone.

The statement that the commission thought something like twenty laborers too many for the Health Department and allowed only one-half that number, is absolutely false. Laborers have been allowed as required and as necessary, and have been numbered by hundreds in the Health Department.

Dr. Reed says that a call for 2,500 yards of wire screening was cut by the commission to 500 yards. The commission has made four purchases of wire screen aggregating upwards of 17,000 square yards, besides entering into a $4,700 contract for screens suitably framed for door and window openings. None of the calls for screens was for the amount of 2 yards, as claimed by Dr. Reed.

No requisition for quinin was ever reduced or denied.

Dr. Reed is also in error when he states that the Isthmian Canal Commission, in its report of December, 1904, states:

> All cases of employes sick with malaria are taken to Colon and Ancon hospitals and so screened that mosquitoes can not reach them.

Dr. Reed calls this "an absolute and unqualified falsehood."

The words quoted by Dr. Reed are not those of the commission; they are not in the commission's report, but appear in a report of the governor of the canal zone, and probably have reference to the use of mosquito bars in the hospitals. Moreover, if mosquitoes are not kept from malarial patients at Colon and Ancon hospitals by the use of mosquito netting, the responsibility falls on the medical officers of these hospitals.

You are asked by Dr. Reed to consider the authorization by the commission, with the approval of its medical staff, to accept student nurses at Ancon Hospital as a mere subterfuge to secure cheap nursing.

The idea that a training school for nurses might prove a success was suggested by the application of a young woman of Panama, a member of one of the foremost families of that republic, who offered to render such service as she might, without pay, being desirous of having an opportunity to gain experience as a nurse, and by the statement made by herself and friends that other young women of Panama would probably avail themselves of any suitable opportunity to enter the hospital as student nurses. On this subject the report on a plan of organization says:

> Attention should also be called to the fact that young women, some from Panama, others *from the* United States, will be desirous of entering a hospital so well equipped as Ancon, as student nurses. This should be encouraged. Climate and environment are not unpleasant, and a good training school for nurses should prove attractive and would add materially to the hospital service.

The scheme as authorized would allow students compensation at the rate of $12 a month during the first year, $15 during the second and $18 during the third. The students would receive traveling expenses to the Isthmus *from* New York, New Orleans or San Francisco, and free return expenses to one of these cities in case of service for at least one year, or in case of disability by reason of illness.

The making of purchases of supplies and materials for use on the Isthmus has not been a simple problem. It has been and is the desire of the commission, so far as practicable, to make purchases on the basis of proposals submitted on advertisement. The following resolution relating to this matter was passed on Aug. 18, 1904:

> *Resolved*, That hereafter, so far as practicable, all purchases of machinery, material and supplies shall be made after due advertisement and competition.

On the other hand, it was necessary at the outset to send to the Isthmus such amounts of material and supplies as were required for the work of the commission, and to prevent loss of time and money to the government. Open market purchases were, therefore, necessary, but the making of open market purchases was stopped and restricted as soon as it seemed wise to do this.

In making purchases by advertising for proposals careful specifications had to take the place of the judgment of the purchasing agent and of experts, and the descriptions contained in requisitions had to be amplified before a call for proposals could be made. In other words, the requisitions were only a general evidence of their requirement; in many cases specifications had to be subsequently prepared. It has been the plan of the commission to have the needs of its several departments foreseen for half-year or full-year periods in order that purchases would be in sufficient quantities to avoid as far as possible emergency calls and to afford the purchasing officer ample time to prepare papers to call for proposals, with a reasonable time allowance to permit intending bidders in all parts of the country to prepare their proposals, and to permit of the delivery, or manufacture and delivery, as the case might be, of the articles required.

We quote in connection with the delivery of material to the Isthmus from the report of the subcommittee of the Committee on Interstate and Foreign Commerce of the House of Representatives:

> In fact, the supplies were received in such quantities and so much more rapidly than needed that the terminal facilities of the railroad were inadequate to care for them.

This, when read in connection with Dr. Reed's letter, may illustrate the difference which the standpoint makes from which the commission's affairs are discussed.

The commission, on its first visit to the Isthmus, in April, 1904, was accompanied by the three chief members of the sanitary corps of the canal. They returned together and were in conference in Washington concerning the preliminary organization of the Health Department for the zone. The views and propositions presented by the chief and associate sanitary officers were then discussed and, with slight modification, accepted by the commission. These officers returned to the Isthmus in June, with full authority to inaugurate their work by selecting their personnel and providing their supplies.

The commission returned to the canal zone early in August, when the necessity of immediate and permanent sanitary organization was at once apparent. A great part of the five weeks during which the commission remained there was spent in conference with the heads of the Health Department, after their experience of three months, concerning the scope and details of an organization which should give them all necessary authority and opportunity to perform their most important duty. The discussion was full and free and resulted in the adoption of the project, which forms part of the minutes of the commission for Aug. 28, 1904. It was the clear understanding at the time, and has been since, that this scheme of organization was satisfactory, not only to the commission, but to the officers on whom the responsibility for the sanitation of the Isthmus devolved. Since that time much correspondence on sanitary subjects has passed and many interviews with members of the sanitary staff have been held, but the commission has not learned from either source that the plan of organization has failed or has become unacceptable to those charged with its execution. Notably, a committee of the commission, recently returned from the Isthmus, unreservedly states the full satisfaction of the sanitary staff with the successful operation of the organization and the health conditions on the Isthmus.

Of course, during the inception of this great work, there have been occasions when the filling of requisitions has been delayed, or where other annoyances have temporarily existed, but the commission has no reason to believe that the scheme of sanitary administration has not been wisely devised, or that it has not been effective in operation.

The commission understands the immense importance of the sanitation of the Isthmus as a factor in the building of the canal. It is certain that the chiefs of the Sanitary Department be aware of the grave responsibility resting on them. If the statements of Dr. Reed were true, either in detail or in the general impression they are intended to convey of sanitary conditions on the Isthmus, they would convict the sanitary staff of a gross abandonment of duty in failure to inform the commission therof. Neither from official *conferences nor from* correspondence, nor from interviews with members of the staff, has it been learned that the plan is defective in scope or in elasticity, or that troubles have occurred except such as inevitably attend the organization of great enterprises.

It remains to be stated that the action of the commission as expressed in its reports and in the resolutions found in the record of its proceedings, is to be accepted as the action of the commission, and represents a consensus of opinion often arrived at before a report or a resolution was written. The fact that any commissioner may have been more frequently noted than others as presenting resolutions is no reason why greater responsibility for the commission's action should fall on him than on the other commissioners.

In conclusion the commission desires to express its appreciation of the courtesy of your act in giving it early opportunity to file a reply to the letter of Dr. Reed.

The report of Dr. Reed was transmitted to this commission by you as a confidential document. The commission has learned, however, that within the last few days it has appeared in full in The Journal A. M. A., published in Chicago, and that synopses thereof have been published in a number of newspapers. The commission would, therefore, most respectfully suggest that this reply be not treated as a confidential document, but that a copy thereof be transmitted with a request for publication in full to The Journal A. M. A., and that the public press be requested to give it extended notice.

Very respectfully,

J. E. Walker.
W. H. Burr.
B. M. Harrod.
C. E. Grunsky.

Queries and Minor Notes

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

NEWSPAPER ADVERTISEMENTS—ABORTION AND PREVENTION OF CONCEPTION.

Elmhurst, Ill., March 16, 1905.

To the Editor:—I wish to speak of a phase of our social system which has long stigmatized our honorable calling and has ruthlessly been reaping its harvest of innocents unmolested and unhampered by law or press. The owners of our daily and Sunday papers are being subsidized to pollute their pages with the most vicious and degrading advertisements. The editors will prate about virtue and write voluminously about corrupt civic and federal legislation, but their virtue is confined solely to the editorial page, and under the plea of not being argus-eyed they fail to see what vile stuff their advertising columns contain. In one Chicago paper these corrupting advertisements are not confined to the advertising pages, but are promiscuously scattered through the reading matter in bold type so as to be observed by the most casual reader. One would infer from the bold manner in which these medical lepers announce their murderous trade to the public, that trafficking in human life is a legitimate and lawful procedure. This scum of the medical profession, among whose wares honor and virtue are absent, for the paltry sum of two or three dollars, will commit the most heinous offense to which a physician can lower himself. Either the statutes are not sufficiently rigid and far-reaching, or public officials are derelict in their duty. We as physicians can not allow this nefarious practice to continue, and retain *our self-respect at the same time.* The correction of this murderous practice devolves on the medical profession for the following reasons: 1. Since some of its integers are *particeps criminis* in the social sin, and 2, as conservators of the public health. It does not require acute reasoning or a wide stretch of the imagination to discern that a high percentage birth rate and the continuance of this evil are incompatible. When, in plain language, appliances for the prevention of conception are heralded in one column of the press, and methods for the destruction of the ovum in an adjoining column, it is very evident that the prospect of a high birth rate is not very flattering. The medical profession should accept the responsibility and duty of acting as censor, so that our newspapers are so cleansed of these filthy and criminal advertisements that the pure and innocent may read every column without danger of defilement. If our efforts are directed against this evil we will not only relieve the medical profession of an incubus but will destroy the parasites that are attacking the roots of our nation's growth and prosperity.

Henry F. Langhorst.

Evanston, Ill., March 20, 1905.

To the Editor:—What is the law in Illinois regulating the use of pessaries? Is it legal to use the so-called pessary, etc., with the sole object of preventing conception? G. A. W.

Answer:—We are unable to find any law in existence in Illinois on the use of pessaries to prevent conception. The United States postal regulations debar from the mails any matter that conveys or advertises any means, device, etc., for the prevention of conception or for the procuring of abortion. There is a law in Illinois entitled:

"An Act to Prevent the Sale of Drugs or Medicines designed to Procure Criminal Abortion."

As there are doubtless many who are unfamiliar with it, we quote it below:

"Section 1. Be it enacted by the People of the State of Illinois, represented in the General Assembly, That no druggist, dealer in medicines, or any other person in this state, shall sell to any person or persons any drug or medicine known or presumed to be ecbolic or abortifacient, except on the written prescription of some well-known and respectable practicing physician. And any druggist or dealer in medicines filling such prescription shall, in a book especially provided for that purpose, correctly register the name of the physician prescribing, the person to whom sold, the name of the medicine or medicines, and the amount, together with the date of the sale.

"Section 2. No druggist, dealer in medicine, or any other person, shall keep on hand or in any manner advertise or expose for sale, or sell, any pills, powders, drugs or combination of drugs, designed expressly for the use of females, in any other manner or form than that hereinafter described, to-wit: The proprietor of any such pill, powder, drug or combination of drugs, shall submit, under oath, a true statement of the formula by which the same is compounded, to five well-known and respectable practicing physicians in the county where the same is proposed to be sold; if the said physicians unanimously agree that the proposed formula is not of an abortifacient character, they shall issue their certificate, under oath, to that effect, a copy of which shall be kept, with the formula attached, for the inspection of any person desiring to see the same, by the druggist or dealer in medicine proposing or desiring to keep for sale such medicine—and this shall be his full warrant for such sale: Provided, this section shall not be taken or construed to apply to such compounds as are known as 'officinal.'

"Section 3. Any person or persons violating any of the provisions of this act shall, on conviction thereof, be punished by a fine of not less than fifty nor more than five hundred dollars, or by imprisonment in the county jail not less than thirty days or more than six months, for each and every offense, or by both."

This law went into effect July 1, 1872, and is still on the statute book.

TEXT-BOOK ON NURSING.

Lewiston, Idaho, March 21, 1905.

To the Editor:—Please let me know what you consider the latest and best text-book on nursing; also where it can be had and price.

T. J. Costello, M.D.

Answer:—For hospitals and training schools, the two books in general use are "A Text-Book of Nursing," by Clara Weeks-Shaw ($1.75), and "Nursing," by Isabel Hampton ($2). In a hospital other books on special branches are used, chief among these being "Obstetrics for Nurses," by De Lee; "Anatomy and Physiology for Nurses," by Diana Kimber, and "Materia Medica for Nurses," by Emily Stoney. A good book for nurses in private work is "Practical Points in Nursing," by Emily Stoney. Any or all of these books may be obtained from W. T. Keener & Co., Chicago, or from any firm dealing in medical books.

State Boards of Registration

COMING EXAMINATIONS.

Idaho State Board of Medical Examiners, Boise, April 3. Secretary, Robert L. Nourse, M.D., Hailey.

Utah State Board of Medical Examiners, Salt Lake City, April 3. Secretary, R. W. Fisher, M.D., Salt Lake City.

Central District Board of Medical Examiners for the Indian Territory, South McAlester, April 3. Secretary, B. W. Caldwell, M. D., Hugo.

Board of Medical Examiners of Arizona, Phoenix, April 3-4. Secretary, Ancil Martin, M.D., Phoenix.

Missouri State Board of Health, University Medical College, Kansas City, April 3-5. Secretary, Winn F. Morrow, M.D., Kansas City.

Board of Medical Examiners of Montana, Helena, April 4. Secretary, Wm. C. Riddell, M.D., Helena.

Board of Medical Examiners of the State of California, San Francisco, April 4. Secretary, Charles L. Tisdale, M.D., San Francisco.

Regular Board of Medical Examiners of Georgia, Atlanta, April 4. Secretary, F. D. Patterson, M.D., Cuthbert.

State Board of Medical Examiners of Tennessee, Nashville, Memphis and Knoxville, April 4-5. Secretary, T. J. Happel, Trenton.

Minnesota State Board of Medical Examiners, the Old State Capitol Bldg., St. Paul, April 4-6. Secretary, C. J. Ringnell, M.D., Minneapolis.

Rhode Island State Board of Health, State House, Providence, April 6-7. Secretary, Gardner T. Swarts, M.D., State House, Providence.

State Medical Board of the Arkansas Medical Society, Little Rock, April 11. Secretary, J. P. Runyan, M.D., Little Rock.

State Board of Health of West Virginia, Parkersburg, April 11-13. Secretary, H. A. Barbee, M.D., Point Pleasant.

Board of Medical Examiners of Oregon, Portland, April 11-13. Secretary, Byron E. Miller, M.D., The Dekum, Portland.

Illinois State Board of Health, Great Northern Hotel, Chicago, April 12. Secretary, J. A. Egan, M.D., Springfield.

Board of Medical Supervisors of the District of Columbia, Washington, April 13. Secretary, Wm. C. Woodward, M.D., Washington.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Kansas February Report.—Dr. C. F. Johnston, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 14-15, 1905. The number of subjects examined in was 12; total number of questions asked, 100; *percentage* required to pass, 75. The total number of persons examined was 24, of whom 21 passed and 3 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
University of Kentucky	(1904)	83
Ensworth Med. College	(1904)	79
Kentucky School of Medicine	(1898)	80
Eclectic Med. Inst., Cincinnati	(1900) 77; (1903)	86
University Med. Coll., Kansas City (1893) 82; (1901) 87; (1903) 79; (1904) 80, 82.		
University of Pennsylvania	(1902)	86
Rush Med. College	(1893)	83
Chicago Homeo. Med. Coll	(1903) 75; (1904)	82
Hahnemann Med. College	(1901)	86
University of Colorado	(1895)	88
College of P. & S., Keokuk	(1895)	85
Louisville Medical College	(1904)	81
Northwestern University	(1900)	86
University of Virginia	(1894)	85
Barnes Med. College, St. Louis	(1892)	82
FAILED.		
University Med. College, Kansas City	(1904)	73
Ohio Med. College, Cincinnati	(1880)	72
Physio-Medical College, Indianapolis	(1890)	62

The Public Service

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending March 25, 1905:

Dickinson, D., medical director, detached from the Naval Hospital, Chelsea, Mass., and ordered to the Navy Yard, Portsmouth, N. H., and to additional duty in command of the Naval Hospital at that place, April 3.

Wells, H., medical director, detached from the Naval Hospital, Newport, R. I., and ordered to duty in command of the Naval Hospital, Chelsea, Mass.

Farwell, W. G., medical director, detached from the Naval Hospital, Portsmouth, N. H., April 5, and ordered home.

Dickson, S. H., medical inspector, detached from the *Kearsarge* and ordered to the *Maine*.

Heneberger, L. G., medical inspector, ordered to duty in command of the Naval Hospital, Newport, R. I., April 3.

Grow, E. J., Grunwell, A. G., Langhorne, C. D., surgeons, commissioned surgeons, with the rank of lieutenant commander, from March 3, 1903.

Johnson, M. K., surgeon, detached from the *Tacoma* and ordered to the *Maine*.

Kite, I. W., surgeon, detached from the *Maine* and ordered to the *Kearsarge*.

Snyder, J. J., P. A. surgeon, detached from the *Kearsarge* and ordered to the *Tacoma*.

Shiffert, H. O., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from Dec. 26, 1903.

Stuart, Allan, P. A. surgeon commissioned P. A. surgeon, with rank of lieutenant, from June 7, 1904.

Bishop, L. W., P. A. surgeon, commissioned P. A. surgeon, with rank of lieutenant, from Sept. 28, 1904.

Tolfree, H. M., asst.-surgeon, detached *from the Hancock*, April 13, and ordered to Washington, D. C., for examination for promotion, and then to wait orders.

Bogert, E. S., detached from the Naval Academy, March 25, and ordered to the *West Virginia*.

Drake, N. H., medical director, detached from the *Hancock* and ordered to the Navy Yard, *Norfolk*, Va.

Lumsden, G. P., surgeon, detached from the Navy Yard, Norfolk, Va., and ordered to the *Minneapolis*.

Crandall, R. P., surgeon, ordered to the *Hancock*.

Winn, C. K., acting asst.-surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the *Cæsar*.

Janney, W. H., acting asst.-surgeon, detached from the *Cæsar*, and resignation accepted, to take effect March 22.

Blackwell, E. M., P. A., surgeon, detached from the *Castine* and ordered to the Naval Station, San Juan, P. R.

Butler, C. S., P. A. surgeon, detached from the Naval Station, San Juan, P. R., and ordered to the *Castine*.

Shook, F. M., asst.-surgeon, appointed asst.-surgeon, with rank of lieutenant, J. G., from March 15, 1905.

The following asst.-surgeons were detached from duty at the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to duty *as follows:* R. B. Chapman, Naval Hospital, Mare Island, Cal.; H. F. Hull, U. S. R. S. *Franklin;* G. L. Wickes, U. S. R. S. *Lancaster;* W. J. Zalesky, Naval Academy; H. T. Nelson, Naval Hospital, Washington, D. C.; C. T. Grayson, Marine Barracks, Washington, D. C.; W. N. McDonell, Naval Station, P. R., and additional duty on the *Alliance*. E. A. Vickery, Navy Yard, Portsmouth, N. H., and additional duty on the *Southery;* R. E. Stoops, *Pensacola*, and additional duty at Naval Training Station, San Francisco, Cal.; R. G. Heiner, Navy Yard, Washington, D. C.; H. A. *May, U. S. R. S. Franklin;* J. L. Belknap, Naval Hospital, Narragansett Bay, R. I.; L. H. Wheeler, Naval Hospital, Narragansett Bay, R. I.; W. D. Owens, Naval Hospital, Mare Island, Cal.; W. A. Angwin, Naval Academy; O. J. Mink, Naval Hospital, New York, N. Y.; N. T. McLean, Naval Hospital, Chelsea, Mass.; W. G. Farwell, Naval Hospital, New York, N. Y.; H. W. Cole, Jr., and C. E. Strite, Naval Hospital, Norfolk, Va.

Acting Asst.-Surgeon F. E. Sellers, detached from the Naval Station, Culebra, and ordered home to wait orders. Acting Asst.-Surgeon V. Dabney, detached from *Rec.* Party No. 2, and ordered to the *Colgoa;* A. A. Surgeon T. C. Blackburn, detached from the *Colgoa* and ordered to Rec. Party No. 2, *at Dallas*, Texas.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 22, 1905.

Glennan, A. H., asst.-surgeon general, granted an extension of leave of absence for three days from March 21.

Sawtelle, H. W., surgeon, granted leave of absence for two days from March 17.

Mathewson, H. S., P. A. surgeon, bureau letter of March 11, granting leave of absence for five days from March 13, amended *to read six* days from March 13.

Fricks, L. D., P. A. surgeon, relieved from duty at the Immigration Depot, New York, and directed to proceed to Castries, St. Lucia, W. I., for duty in the office of the American consular agent.

Kerr, J. W., P. A. surgeon, *granted* leave of absence for five days from March 14, 1905, under Paragraph 191 of the Regulations.

Wilson, R. L., P. A surgeon, to proceed to Vera Cruz, Mexico, for duty in the office of the American consul.

McLaughlin, A. J., asst.-surgeon, granted leave of absence for six days from March 20.

Frick, John, acting asst.-surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Tampico, Mexico, for duty in office of American consul.

Goldsborough, B. W., acting asst.-surgeon, granted leave of absence for three days from March 23.

Kurtz, W. M., acting asst.-surgeon, granted leave of absence for seven days from March 18, 1905, under *Paragraph* 210 of the Regulations.

McLarty, A. A., acting asst.-surgeon, granted leave of absence for 30 days from April 1.

BOARD CONVENED.

Board to meet at Washington, D. C., March 18, 1905, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board; Asst.-Surgeon-General W. J. Pettus, chairman; Asst.-Surgeon-General H. D. Geddings; Asst.-Surgeon A. J. McLaughlin, recorded.

Health Reports.

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended March 24, 1905.

SMALLPOX—UNITED STATES.

District of Columbia: Washington, March 11-18, 1 case, 1 death.
Florida: Jacksonville, March 11-18, 3 cases.
Illinois: Chicago, March 11-18, 20 cases, 3 deaths.
Kentucky: Lexington, March 11-18, 1 case; Louisville, March 8-16, 4 cases.
Louisiana: New Orleans, March 11-18, 11 cases.
Michigan: At 65 places, Feb. 25-March 4, present.
Missouri: St. Louis, March 11-18, 43 cases, 2 deaths.
Nebraska: Omaha, March 11-18, 2 cases.
New York: Mount Vernon, March 11-18, 1 case; New York City, 1 case.
Ohio: Toledo, March 4-18, 9 cases.
Tennessee: Memphis, March 11-18, 10 cases.

SMALLPOX—FOREIGN.

Argentina: Buenos Ayres, Dec. 1-31, 17 deaths.
Brazil: Nictheroy, July 1-Jan. 1, 248 deaths; Santos, Jan. 15-22, 1 death.
Ecuador: Guayaquil, Feb. 1-28, 3 deaths.
France: Paris, Feb. 25-March 4, 22 cases, 1 death.
Germany: Bremen, Feb. 18-25, 2 cases.
Great Britain: Bradford, Feb. 18-25, 5 cases, 1 death; Leeds, Feb. 25-March 4, 1 case, 1 death; Leith, 2 cases; London, Feb. 18-March 4, 11 cases; New Castle-on-Tyne, Feb. 25-March 4, 3 cases.
India: Bombay, Feb. 14-21, 164 deaths; Calcutta, Feb. 11-18, 3 deaths; Karachi, Feb. 12-19, 3 deaths; Madras, Feb. 11-17, 1 death.
Italy: Lecce Province, Jan. 16-23, 6 cases.
Russia: Moscow, Feb. 18-25, 8 cases, 1 death.
Spain: Barcelona, Feb. 21-28, 5 deaths.
Uruguay: Montevideo, Feb. 16, 34 cases, 7 deaths.

YELLOW FEVER.

Panama: Panama, Jan. 1-March 7, 36 cases, 14 deaths.

CHOLERA.

India: Calcutta, Feb. 11-18, 24 deaths.
Turkey in Asia (general): Jan. 14-21, 40 cases, 12 deaths; Van, Jan. 14-21, 34 cases, 7 deaths.

PLAGUE.

Africa (British): Kismu, Jan. 5-12, present.
Arabia: Aden, Feb. 11-18, 374 cases, 342 deaths.
Chile: Chanaral, March 16, present; Iquique, present; Pisagua, epidemic.
Egypt: Suez, Feb. 2-9, 4 cases, 1 death; Tukh, Feb. 4, 1 case.
India: Bombay, Feb. 14-21, 666 deaths; Calcutta, Feb. 11-18, 88 deaths; Karachi, Feb. 12-19, 59 cases, 58 deaths; Madras, Feb. 11-17, 1 death.
Russia: Urlask Territory, Nov. 1, 1904-Jan. 16, 313 deaths.

Society Proceedings

COMING MEETINGS.

American Medical Association, Portland, Ore., July 11-14, 1905.

Medical Association of the District of Columbia, Washington, April 4.
Association of American Medical Colleges, Chicago, April 10.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Association of the State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
American Medico-Psychological Association, San Antonio, Texas, April 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.
American Association of Pathologists and Bacteriologists, Chicago, April 21-22.
American Gastro-Enterological Association, New York, April 24-25.
Medical and Chirurgical Faculty of Maryland, Baltimore, April 25-27.
Texas State Medical Association, Houston, April 25-28.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held March 8, 1905.

Dr. Howard M. Fussell in the Chair.

Fracture of Cervical Spine.

Dr. Charles W. Burr exhibited a case of fracture of the cervical spine. The patient fell from a cart striking his neck and shoulders. After regaining consciousness he had severe pain in the neck, shoulders and both arms, and loss of power in the arms. About six months later he could walk fairly well, with short, stiff steps. He held his neck stiffly; movements in the arms were limited by rigidity and by weakness. The grip was very weak. The deep reflexes were increased. The skiagraph revealed a fracture of the body and lamina of the fifth cervical vertebra. At the present time he walks well. His head is held stiffly. He can move it a little, but with pain. There is considerable movement of the arms, with rigidity. The kneejerks are a little increased. The plantar jerks are normal. There is a little muscular wasting in the deltoids, but none elsewhere. There is some spasmodic retention of urine.

DISCUSSION.

Dr. M. K. Kassabian showed that a very small per cent. of fractures are of the spine. In 1,500 cases of fracture only 4 per cent. were of the spine.

Dr. Morris B. Miller stated that operation should only be undertaken when there is pressure on the cord or from bone. Ankylosis gives a fair chance of slow absorption of hemorrhage and gradual restoration of function. To secure that no device is better than a modified jurymast.

How Can the Physician Profit by Preventive Medicine?

Dr. J. Madison Taylor presented evidence to show that it is necessary that preventive medicine shall be exhibited to the profession as a means of advantage to themselves as well as to the community. The relationship of the physician to the patient is on the wrong basis. The practitioner should be given free opportunity to inspect the members of a household at regular periods or at will, and not called only when there is illness. Disease is now being studied from the standpoint of economics, hence prevention is to be welcomed as a source of general wealth. Legislation can be made more effective if physicians will do their part toward the prevention or limitation of preventable disease. Physicians should more clearly point out the ways to reform and educate the public, and they should accept the authority of the health boards more cordially and work with them to accomplish results. He recommended the adoption of a different fee system, and said that it is a false position for the physician to earn no fee except by being invited to meet exigencies; better, he says, to adopt the plan long since found necessary by lawyers, of demanding a retaining fee or yearly stipend of the householder, thus giving them access to the house to rectify constitutional peculiarities and save from peril. He alluded to the neglected duty of the physician of discouraging the use of many medicines, bitters, tonics, cough medicines and the like, whose chief attractiveness is the contained alcohol or narcotics.

Osmic Acid Treatment of Tic Douloureux.

Dr. W. Wayne Babcock reported a severe case of trifacial neuralgia. The condition had persisted for thirty-five years, despite eight operations, including two attempts to remove the Gasserian ganglion, and the excessive use of drugs had at one time led to temporary insanity. About nine months ago a 2 per cent. solution of osmic acid had been injected, under cocain anesthesia, into the inferior dental nerves. More recently the infraorbital, palatine and supraorbital nerves were injected. The patient has gained thirty-five pounds in weight and his physicial condition is improved. No major operation, he stated, is warranted in the treatment of trifacial neuralgia until the futility of osmic acid injections into the peripheral nerve trunks has been proved.

Dr. L. J. Hammond called attention to the relations of the nerve fibers comprising the trifacial, and thought that absolute cure of these pains should not be expected until not only the trifacial, but the different branches of the fifth nerve were dealt with.

The Problem of the Treatment of Laryngeal Tuberculosis.

Dr. W. G. B. Harland stated that the vocal cords, interarytenoid fold and arytenoids are the parts most often affected, involvement of epiglottis or epiglottic folds being more serious. Most forms of the disease pursue a harmless chronic course. Edema and deep ulceration, however, are dangerous. The laryngeal lesion does little harm, except when it causes dyspnea, pain or difficulty in swallowing; it forms an index of general health and resisting power. Treatment is directed toward lessening irritation in the upper air tract, healing ulcerations and building up general health. The *x*-ray is of use in some cases. Serum therapy promises much.

DISCUSSION.

DR. W. WAYNE BABCOCK referred to a case of laryngeal tuberculosis, in which, following an intralaryngeal application, the patient had dyspnea and became unconscious. A rapid tracheotomy was done, after which she improved and gained in weight. Further applications were not made by the laryngologist for fear of the edema, but after two or three months the edema again developed. A second tracheotomy was done, and since that time the patient has worn a tube continuously. Her voice is better and she has gained in weight.

DR. L. J. HAMMOND has operated on eight cases of laryngeal phthisis with good results. The best treatment is to put the parts at rest.

DR. GEORGE E. PFAHLER mentioned a case in which he is making the *x*-ray applications externally, using a high vacuum tube at a distance of from 15 to 20 inches. Distinct improvement has been noted.

DR. HARLAND said he had observed that the surgical treatment is rather unsatisfactory.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, held Jan. 24, 1905.

The President, Dr. Hugh Hanna, in the Chair.

Cancer of Corpus Uteri.

DR. FRANK C. HAMMOND reported three cases and reviewed the symptoms and diagnosis of this affection. He emphasized the fact that if success is to be obtained in the treatment the practitioner must recognize the importance of early diagnosis and early radical operative procedures. When the cervis uteri is normal and the patient presents symptoms suggestive of malignancy of the uterus, one must not lose sight of the fact that malignancy of the body of the uterus may be present. Emphasis was laid on the necessity of curetting all cases of suspicious bleeding and submitting the scrapings to a careful microscopic examination. This is supported by the fact that the prognosis in adenocarcinoma of the corpus uteri is generally favorable, provided that the process is detected in the early or comparatively early stages. Should no microscopic evidence of cancer be found, the curettage must be repeated whenever the bleeding reappears. The reappearance of hemorrhage, one, two, three or more years after the menopause, is strong presumptive evidence of cancer and always demands immediate examination. Too often the four cardinal symptoms, pain, hemorrhage, fetid discharge and cachexia are most depended on for diagnosis, and by the time these symptoms are present, too frequently the case is inoperable. For making an intrauterine digital examination the uterus is best dilated by means of the Schatz metreurynter; in multiparous women the dilation is painless, but in the nulliparous it is more or less painful. Early complete hysterectomy is the only means of treatment.

DISCUSSION.

DR. J. THOMPSON SCHELL considered the diagnosis of these conditions very difficult and referred to the case of a woman 45 years of age, giving a history of having missed three periods and then going through with what seemed to be an incomplete abortion. A curettement was done, but the scrapings were not examined. The same history was repeated at the expiration of eight or nine months and seven months, respectively. The report on the scrapings showed them to be normal deciduous tissue, but it was finally decided to remove the uterus. Examination of the tumor showed it to be a very small adenocarcinoma. He expressed the belief that cases of this character may run a course of a number of years, apparently becoming normal after each curettement, and then giving a history of abortion, as in this case. The patient above referred to made a good recovery. Another case was that of a woman who gave a history of repeated hemorrhages, occasionally between the periods, the discharge being odorless. Curettement and examination of the scrapings showed it to be a beginning carcinoma, which was removed, and the woman made a good recovery. He urged the importance of early diagnosis and operation, and emphasized the value of the Schatz metreurynter.

DR. WILMER KRUSEN stated that only about 5 per cent. of all cases of cancer of the uterus are cancer of the body. There is very little clinically to aid in the diagnosis. He referred to the rarity of this condition in the colored race and nulliparous women, and stated that Emmett reported only one case. While text-books class this as a disease occurring between 40 and 50, probably in about four-fifths of the cases it occurs in women under 32. The only symptoms present in these cases early is a little bleeding, and the uterus little or not at all enlarged. He, too, emphasized the value of the Schatz metreurynter as a diagnostic aid, but believed the application thereof produced considerable pain. The prognosis is more favorable in cases of cancer of the body than in cervical cancer.

DR. FRANK C. HAMMOND, in closing, stated that the younger the woman the more rapid was the fatal termination of the disease when operation was refused, and referred to cases reported by Kelly in which malignant disease had been diagnosed as long as five years before death.

Extrauterine Pregnancy.

DR. WILMER KRUSEN referred to the fact that the condition was being more frequently recognized at present than in the past, and attributed this to advances in abdominal surgery. As causes of the condition he mentioned: (1) Mechanical causes which interfere with the downward passage of the ovum; (2) causes resulting from inflammatory conditions of the tubes, ovaries and pelvic peritoneum; (3) physical and developmental abnormalities which favor decidual formation in the tubes. He reported a case of the second type. The patient, 30 years of age, had a negative family history, except that her mother died of heart disease at 45. She had had measles, varioloid and appendicitis, said to have been complicated by peritonitis, five years ago. Three years after marriage her first child was born, a "blue baby." Two weeks after confinement, the patient complained of intense pain in the lower abdominal region extending to the inguinal region, before the appearance of which there was a movable mass noticeable in the hypogastric region, which disappeared on the appearance of the former. Following these symptoms there was a very marked odor to the vaginal discharge, which after about six weeks disappeared, and a few weeks later the patient felt perfectly well. In May, 1904, the patient complained of soreness when standing, which was diagnosed as a case of enlarged tubes, and treated with tampons, but with no avail. Menstruation continued almost normal up to November 6, when she menstruated but one day, and between that date and November 27, when brought into the hospital, the patient felt well and gained flesh. One evening, on retiring, she complained of pain in the lower abdomen, which increased and extended up to the diaphragm. Vomiting began shortly afterward. At noon there was dyspnea, interference with sight and hearing and weakness. Operation revealed the left tube as the site of the rupture; on the right side was a tubo-ovarian abscess. Both appendages were removed, the patient making an uninterrupted recovery.

DISCUSSION.

DR. FRANK C. HAMMOND stated that the opening in the tube was very very small, as though some person had taken a pencil point and pierced it.

DR. J. THOMPSON SCHELL referred to a case in which he had done two curettements, the woman having a history of about fourteen self-produced abortions, usually at about the end of the third month of pregnancy. He was called in to see her when she had symptoms of beginning peritonitis and obstruction of the bowel, having had no movement for two days. On opening the abdomen a gangrenous right fallopian tube and a fetus were found, and on the other side an abscess cavity, about as large as a canteloupe. Drainage was established through the vagina, but the patient died of pelvic peritonitis.

Dr. **Carle Lee Felt** referred to a case in which, after childbirth, the patient thought she had a tumor. At the operation ectopic gestation was found, which had been present during her pregnancy.

Dr. **M. J. Karpeles** referred to three cases of ectopic gestation. The first case was diagnosed as typhoid fever. Examination revealed the presence of a mass behind the uterus. The second patient had a history of nocturnal paroxysmal abdominal pain, discharge of blood, and miscarriage six months before. Another miscarriage was suspected, a curettement done, and she apparently improved for a few days, when the fever increased. A mass was felt in the right side, operation was done and the patient made a good recovery. The third patient gave a history of slight bloody discharge. Miscarriage was suspected, but proved to be an ectopic gestation.

Dr. **Krusen** stated that he usually gave 1/60 of a grain of salicylate of eserin, every three or four hours, until the bowels were moved.

CHICAGO UROLOGICAL AND CHICAGO MEDICAL SOCIETIES.

Joint Meeting, held March 1, 1905.

The President of the Chicago Urological Society, Dr. R. R. Campbell, in the Chair.

Pus Infections of the Genital Tract in the Male.

Dr. **William T. Belfield** read a paper on this subject which will appear in The Journal.

X-Rays as a Means of Diagnosis in Kidney Surgery.

Dr. **Arthur Dean Bevan** called attention to the fact that the first work done in this country in this line was done in Chicago in 1897. Since that time very definite results have been obtained by the use of the *x*-ray. Leonard of Philadelphia showed that the evidence furnished by the *x*-ray was to be relied on, even the negative evidence where the differentiation was clear. Bevan published a paper in the *Annals of Surgery* reporting 13 or 14 cases, and claimed that the *x*-ray as a means of diagnosis was to be relied on to a greater extent than any other means at our disposal in cases of kidney stone. He thinks the best exposition of this entire work is to be found in the *Beiträge für Chirurgie*, from the pens of Kümmel and Rumpell. Kümmel takes the position of Leonard and Bevan, and presents practically these conclusions, that the *x*-ray, properly used, will detect a stone in any individual, no matter how thick, and a stone of any chemical composition; that the detection of the stone does not depend so much on its chemical composition or the thickness of the individual as it does on the proper use of the *x*-ray. The conclusions of Kümmel, Leonard and Bevan are not accepted to-day. Most of the work done with the *x*-ray in kidney stone has been poor work. A lot of work done at hospitals and in laboratories and submitted to medical men as finished, expert *x*-ray work, is not really worthy of attention. He had seen plates taken by men who were not competent to interpret the findings and determine whether or not stone was present; then operate on the case, find no stone at the time of operation, and damn the *x*-ray. The *x*-ray does not lie in these cases. The *x*-ray has absolutely no fallacies. To be sure, there will be cases where the evidence is uncertain; where the individual who is doing this work, who is competent to do it and to interpret it, will place them in an uncertain group. On the other hand, the great majority of cases are very clear and definite, and belong to a group where there is stone or where there is no stone present.

In 27 cases positive findings and stones were found at operation in 13; in about the same number of cases negative findings, and at the time of operation other pathologic conditions than stone were found. There was one doubtful case which was clearly stone clinically, and it was found at the time of the operation. After the operation one could clearly see in the plates a stone behind the twelfth rib, in a position where it is not often found. The ordinary position of stone in these cases is an inch and a half from the transverse process and a little below the twelfth rib.

With reference to the differential diagnosis between stone and other lesions in the kidney, and between stone and other conditions, such as appendicitis, gallstone and some other complicating conditions on the right side, in a series of several hundred cases collected since the introduction of the *x*-ray and the use of it in kidney stone work, he has had three cases in which a diagnosis of appendicitis was made, where the evidence seemed to be definite—the appendix was removed—and where later the *x*-ray disclosed a stone in the kidney. It is difficult to say definitely whether the symptoms which occurred in these cases were at all times due to the stone, and the appendix was not the organ at fault. In two of these cases he believes the appendix had not given rise to any symptom. The history in all three was quite similar: A series of attacks, the appendix removed, and later attacks after the operation. Then, another review of the situation, with the *x*-ray picture determining the presence of stone, the stone removed and the patient cured. One rather interesting feature in one of these cases was found: After the removal of the appendix first and the stone later, the patient was not cured, and a further review of the case showed tubercle bacilli in the urine. One kidney was found normal, and in the other nephrectomy resulted in a permanent cure. In the differential diagnosis we should always consider gallstones. These stones very seldom show in the *x*-ray.

Diagnosis of Ureteral Stones.

Dr. **M. L. Harris** stated that with the possible rare exception of a stone forming about a foreign body or an obstruction in the ureter, all ureteral stones have their origin in the kidneys, whence they migrate to some point in the ureter where they become arrested. Previous to the migration of a stone the patient may or may not have presented symptoms pointing to kidney trouble, but the act of migrating is almost always accompanied by excruciating pain, known as renal or ureteral colic. The pain does not usually cease suddenly, but disappears more gradually. After the stone becomes lodged it may remain latent for an indefinite period, provided it does not completely occlude the lumen of the ureter so as to prevent the passage of the urine around it. More commonly the patient has recurring attacks of pain of varying intensity and at variable intervals, similar to the original ureteral colic, or a more or less fixed pain or soreness at some point in the lumbar region or along the course of the ureter may persist. The urinary findings and other symptoms are such as are common to kidney stones, or a pyelitis, or ureteritis from other causes, and, therefore, in no way characteristic. Localized tenderness along the ureter, or an enlarged ureter, if detached, on palpation may have some significance, but is not conclusive. Stones lodged at the lower end of the ureter may be palpated at times through the vagina or, more rarely, through the rectum. With the aid of the *x*-ray stones can be recognized in all portions of the ureter. It should be remembered, however, that a skiagram is but a visible expression of the relative facility with which the *x*-rays are transmitted through the various substances which have been interposed. A correct interpretation of the shadows is very important, yet this may be difficult or even impossible without a knowledge of all of the collateral facts pertaining to the particular case in hand. Harris directed attention to the possibility of error in interpreting shadows which apparently lie in the course of the ureter, and particularly that portion of the ureter which is contained within the pelvis. When such shadows are found in this portion of the pelvis, with symptoms pointing to ureteral stone, the ureters should be catheterized in order to determine whether the shadow actually lies in the course of the ureter. The tip of the bougie may be waxed, so that contact with a foreign body, such as a stone, may be recognized by the indentations made in the wax.

An Attempt to Use the Electric Conductivity of Urine for Clinical Purposes.

Drs. Gustav Kolischer and Louis E. Schmidt have tried to determine the functional capacity of the kidneys from a new point of view. They tried to make every kidney a standard unto itself. They investigated whether the secreting efficiency of normal and abnormal kidneys might be influenced in a peculiar and characteristic way, so the osmotic concentration of the urine voided before and after staining certainly ought to show marked differences. The results of their investigations so far seem to bear out these theoretical speculations. As the most sensitive test they resorted to the test of electric conductivity, and as a method of staining they selected hypodermic injections of indigo carmin. After the stain is brought into the circulation, and after the urine becomes colored, the urine of normal kidneys always shows a slight decrease of electric conductivity, which depression, however, will never exceed nine international ohms. In case urine simultaneously drawn from both normal kidneys shows different electric conductivity before staining, the decrease of *conductivity appearing after staining is exactly* the same in either specimen. Urine drawn from pathologic kidneys will always, after staining, show a decided increase of electric conductivity. The authors believe they are justified in saying that any increase after staining of electric conductivity beyond ten international ohms is characteristic of impaired health of the kidney. If this increase stays inside the limits of twenty ohms, this kidney may be considered as safe in a surgical sense; that is, it can reasonably be expected to be of sufficient functional capacity to attend to the eliminating process after its mate has been removed. Any kidney whose urine after staining shows an increase of electric conductivity beyond twenty ohms has to be considered as absolutely unsafe in a surgical sense. They expect to be able to determine by this method in advance whether a given individual will react, as to his kidneys, favorably or unfavorably to the administration of a general anesthetic.

Diagnosis of Syphiloma of Kidneys.

Dr. R. R. Campbell read a paper on this subject which will appear in The Journal.

BOSTON MEDICAL LIBRARY MEETING.

Meeting held March 1, 1905.

Dr. Francis B. Harrington in the Chair.

SYMPOSIUM ON SURGERY OF RENAL AND URETERAL CALCULI.

Results of Cases at the Massachusetts General Hospital.

Dr. Hugh Cabot found from 1897 to 1904, 26 cases, all of which were operated on. Age averaged 80 years; 8 females, 18 males; 15 in right kidney, 7 in left, 4 in both kidneys; 9 had marked hematuria, while all showed blood in the urine microscopically; all had pain; in 2 this was recent, though the calculi were large; 11 had renal colic; 10 had passed a small stone or gravel; 5 had a tumor, of which 3 were fatal; *x*-ray was used on 15 and was positive in 13; average duration of symptoms was six and a half years, showing how loath physicians are to refer such cases to the surgeon. Nephrectomy was the operation done in 3 cases, all of which recovered; nephrotomy was done 27 times on 21 patients, 4 of whom died; urethro-lithotomy was done on 2 patients. Two cases were operated on for appendicitis, one afterwards passing a stone and the other dying of uremia. There were 6 deaths, 2 from chronic sepsis, 1 from loss of substance, 2 from uremia and 1 from secondary hemorrhage eight days later. Thirteen were seen within the last month; 10 are well, 1 passes pus in urine, 1 has pain and 1 has pain and passes gravel as before the operation.

Actual Results of Cases at the Boston City Hospital.

Dr. J. H. Cunningham, Jr., reported 43 cases; average age 33 years; 33 males, 10 females; 30 in right kidney, 10 in left and 3 in both kidneys; *x*-ray was used on 7; positive in 6. Urine was acid in 40 cases, alkaline in 1, neutral in 1, and always contained blood. No case had any gouty symptoms. Pain in 36 cases; renal colic in 20; lumbar pain in 13. All were tender to pressure over the affected kidney. Five had tumor; 16 had hematuria; 33 pyuria; 10 had passed calculi before. Largest one removed weighed 5 ounces. Fifteen were operated on, with 2 deaths, one aged 53 from shock, one aged 34 from pyonephrosis. Lumber operation was employed in 13 cases. Seven cases are well after several months or years. In the series was included one patient operated on by the method of nephro-lithotomy by Dr. William Ingalls. The man recovered and lived for twenty years. This was probably the first time this operation was done, being ten years before the first case reported by Dr. Morris, though reported later than Dr. Morris' case.

Dr. Henry F. Hewes read a detailed description of the best methods to be employed in the diagnosis of renal calculi from the examination of the urine.

Other Means of Diagnosis of Calculi.

Dr. Benjamin Tenney compared statistics of Morris and others with his own report of 128 cases of ureteral calculi made last year. He had been over the autopsy reports of the Massachusetts General Hospital and the Boston City Hospital since 1896 and among 3,807 found 16 cases of calculi in kidney, 8 in ureter and 3 in both kidney and ureter. Gallstone was seven times more common. Aside from the examination of urine the *x*-ray is the most accurate single means of diagnosis. Other useful means are catheterization of ureters, cystoscopy, palpation and possibly the "stamping test."

Operations for Renal and Ureteral Stone.

Dr. Paul Thorndike said the operator should be ready for a complete operation, laying kidney out on loin and splitting it. Such split sides should be kept pressed together or hemorrhage will occur through the ureter into the bladder. The question of nephrectomy versus nephrotomy depends on amount of tissue remaining, and on the condition of the other kidney. Ureteral calculi are apt to be near the kidney, at the pelvic brim or near the bladder. At the lower end they may be reached through the bladder, vagina or urethra; at the pelvic brim through the rectum, by perineal section, through the sacrum, by abdominal section, through the vagina, or by the extraperitoneal operation in the iliac region near Poupart's ligament.

DISCUSSION.

Dr. E. W. Cushing said cases may have the symptoms and no stone. In deciding whether to do nephrectomy or nephrotomy many things must be considered, among others the renal fistula which is apt to follow the latter. In attempts to get at the ureter it is useful to remember that it keeps with the peritoneum, not with the blood vessels. Because of the difficulty of following it down into the pelvis it is often best to do an abdominal operation.

Dr. Edward Reynolds said it was important to decide early whether nephrectomy was to be done or nephrotomy, and that the information to be gained by catheterization of the ureters, so easy in women, was very useful. The surgeon then knows whether the other kidney is doing good work or whether it is necessary to preserve all possible kidney tissue. He protested earnestly against the use of the wax-tipped bougie, which he considers a very dangerous instrument.

Dr. Earnest A. Codman, with an experience of 25 cases of *x*-ray work, feels that it is of doubtful value. Unless a well-marked shadow of the last rib is visible in the radiograph, a calculus can not be expected to show though it may be present.

Dr. Paul Thorndike spoke of a uric-acid calculus which showed clearly in a radiograph and said that it might be explained by the associated urates.

Dr. F. B. Harrington spoke of the valuable aid to be gained from an elastic clamp applied after the kidney is delivered on *the loin.* An opening may sometimes be made into the pelvis of the kidney and considerable quantities of detritus removed by a curette without damaging the kidney substance at all.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Pharyngitis.

In the treatment of the acute forms of pharyngitis, E. F. Ingals states that when the portal circulation is sluggish the occasional administration of salines and mercurials is indicated. Poor digestion must be corrected by bitter tonics. The following is recommended by some authorities applied locally:

℞.	Argenti nitratis	gr. xxx	2	
	Aquæ destil.	℥i	30	

M. Sig.: To be applied locally on a swab.

In applying this solution the tongue should be depressed as far as possible and the application made quickly from the lower part of the pharynx upward, by which procedure the whole pharynx is treated at once. Care must be observed that the solution does not come in contact with the epiglottis, nor drop into the pharynx, otherwise acute edema may develop and produce great dyspnea. In the chronic form of pharyngitis, Ingals recommends eliminants and tonics. Arsenous acid internally is also advised, combined with nux vomica, as follows:

℞.	*Acidi arsenosi*	*gr. i*		06
	Ext. nucis vom.	gr. x		65
	Ext. cascaræ sagradæ	gr. xii		75

M. Ft. capsulæ No. xxiv. *Sig.: One capsule before each meal.*

Locally he recommends the following as an insufflation into the nasopharynx in those cases presenting several enlarged *follicles providing the surrounding mucous membrane is moist:*

℞.	Hydrastis muriatis	gr. xxv	1	65
	Pulv. acaciæ q. s. ad.	gr. c	6	65

M. Sig.: To be used as an *insufflation* into the nasopharynx.

In the mild cases local astringents are desirable, and for this purpose he recommends the troches of krameriæ compound, *and the following spray to the pharynx:*

℞.	Cupri sulphatis	gr. x-xx	.65-1	30
	Aquæ	℥i	30	

M. Sig.: To be used *as a spray twice daily.*

When the foregoing treatment is not sufficient to effect a cure, cauterization of the follicles is recommended, using either nitric acid, chromic acid, or better, the galvanocautery and cauterizing *only two or three follicles at a time.* The treatment is repeated every four or five days.

As a local antiseptic, some authorities recommend the following combination:

℞.	*Tinct. iodi*	ʒi	4	
	Acidi carbol.	gr. vi		30
	Acidi tannici	gr. xx	1	30
	Glycerini q. s. ad.	℥ii	60	

M. Sig.: Apply with a swab two or three times daily.

Yeo recommends the following combinations in the treatment of the different forms of pharyngitis:

℞.	Acidi carbolici	ʒss	2	
	Cocainæ hydrochlor.	gr. iv		25
	Glycerini	ʒii	8	
	Aquæ rosæ q. s. ad.	℥vi	180	

M. Sig.: To be used as a gargle or a spray two or three times daily in the acute forms of pharyngitis; or:

℞.	Acidi tan*nici*	gr. xii		75
	Tinct. iodi	m. v		30
	Acidi carbol.	gr. xxx	2	
	Glycerini	℥ss	15	
	Aquæ q. s. ad.	℥iii	90	

M. Ft. lotio. Sig.: Paint the throat with this solution three times daily.

As a gargle in catarrhal angina the following is of value:

℞.	Aluminis	ʒiss	6	
	Tinct. opii	ʒss	2	
	Mellis	ʒii	8	
	Syr. rosæ (B. P.)	ʒiii	12	
	Aquæ q. s. ad.	℥viii	240	

M. Sig.: To be used as a gargle.

When the throat is relaxed and reddened the following may be used:

℞.	Tinct. capsici			
	Acidi tannici, āā	ʒss	2	
	Infus. *rosæ acidi*	℥iii	90	
	Aquæ q. s. ad.	℥v	150	

M. Sig.: To be used as a gargle.

The following astringent solution, *in* some cases, may serve the purpose better:

℞.	Aluminis	ʒiv	15	
	Acidi tannici	ʒi	4	
	Mellis	℥i	30	
	Aq. rosæ q. s. ad.	℥viii	240	

M. Sig.: To be used as a gargle.

In cases of chronic pharyngitis the following combinations are recommended:

℞.	Glycerini acidi carbol. (B. P.)	ʒiiss	10	
	Acidi tannici	ʒi	4	
	Tinct. capsici	ʒss	2	
	Infusi rosæ acidi q. s. ad.	℥vi	180	

M. Sig.: To be used frequently as a gargle; or:

℞.	Ammon. chloridi	ʒss	2	
	Mellis			
	Syr. rosæ, āā	℥ss	15	
	Aquæ q. s. ad.	℥vi	180	

M. Sig.: As a gargle several times during the day.

Sodium Hyposulphite.

This preparation is recommended by Shoemaker in the treatment of scabies, applied as follows:

℞.	*Sodii hyposulph.*			
	Aquæ destil., āā	℥iii	90	

M. Sig.: Apply locally to the affected parts after a morning bath, and allow it to dry on the skin. Before *going* to bed the skin is bathed with the following lotion:

℞.	Acidi hydrochlor. dil.	℥iii	90	
	Aquæ destil.	℥vi	180	

M. Sig.: Apply locally at night.

In the treatment of thrush or sprue occurring in infants or adults the following combination is of value:

℞.	Sodii hyposulph.	ʒiii	12	
	Glycerini	ʒiss	6	
	Aquæ q. s. ad.	℥ii	60	

M. *Sig.: Apply locally on a piece of absorbent cotton or* antiseptic gauze. It will do no harm if the infant should swallow any of the solution. Sodium hyposulphite is also of service as an antiseptic when sarcinæ are present with *vomiting.*

℞.	Tinct. gentianæ co	ʒii	8	
	Tinct. capsici	ʒss	2	
	Sodii hyposulph	gr. xl	2	65
	Spts. chloroformi	gtt. vi		25
	Aquæ q. s. ad	℥viii	240	

M. Sig.: Two tablespoonfuls three times a day.

Psoriasis.

The following combinations are recommended by *Med. Bulletin* in the treatment of psoriasis:

℞.	Sulphuris precip.	gr. iii		20
	Salol	gr. ii		12
	Olei gaultheriæ	m. ss		03
	Acidi arsenosi	gr. 1/30		002

M. Ft. *cap.* No. i. Sig.: Two capsules three times a day for an adult.

Locally the following may be used:

℞.	Acidi salicylici	ʒi	4	
	Ung. hydrarg. nitrat.			
	Ung. aquæ rosæ, āā	℥ss	15	
	Olei eucalypti	ʒss	2	

M. Ft. unguentum. Sig.: To be applied locally.

Hyperidrosis.

Unna, in an abstract in *N. Y. Med. Jour.*, recommends in the treatment of hyperidrosis *that the affected* parts be washed with spirits of camphor or with a weak solution of vinegar. As a local application the following is advised:

℞. Ichthyol.
Spts. terebinthinæ, āā ....ʒv 20
Ung. zinci oxidi ....ʒx 40
M. Ft. unguentum. Sig.: To be used locally on retiring.

In the shoes the following may be sprinkled:

℞. Pulv. sinapis ....ʒi 4
Pulv. talci ....℥iv 120
M. Sig.: To be sprinkled in the shoes.

When the hands alone are affected a half teaspoonful of the following may be thoroughly rubbed into the hands after each washing:

℞. Spiritus oderatus ....℥iii 90
Tinct. belladonnæ ....℥ss 15
M. Sig.: To be applied locally to the hands.

Multiple Warts.

Mantelin, in *Merck's Report*, recommends the following in the treatment of multiple warts:

℞. Chloralis hydratis
Acidi acetici, āā ....ʒiss 6
Acidi salicylici
Spts. etheris, āā........................ʒi 4
Collodii ....ʒiv 15
M. Sig.: Apply locally to the warts twice daily.

Removal of Nevi.

Neiswanger recommends in the removal of nevi that the child be put to sleep and the positive electrode of the galvanic battery, well moistened in a warm saline solution applied to the abdomen. To the cathode attach the needle holder in which is fastened a suitable needle, generally a long, slender one, from which the temper has been drawn. After the seat of operation has been cleansed and the needle has been drawn through an alcohol flame, it is passed almost through the mark, superficially and parallel with the epidermis. The strength of the current used should depend on the distance the needle has been inserted, but the strength usually varies from one-half to eight milliamperes, which should be maintained until the usual blanched appearance indicative of decomposition is obtained. In like manner, every portion that is red should be attached as many times as necessary.

The part should then be dusted with boric acid and in about one week a dark crust covers the whole area which should not be disturbed until about ready to drop off. If the mark has not been very large, the resulting scar will be almost entirely absorbed in a few months and even where the area involved has been rather large the scar will scarcely be noticeable after one year because the caustic action of the negative electrode, like that of any alkaline caustic, leaves a soft cicatrix that is rather easily absorbed.

Medicolegal

Ship Not Liable for Malpractice.—The United States District Court in New York holds (The Napolitan Prince 134 Federal Reporter, 159) that the errors, mistakes or negligence of its official physician in treating a passenger for an injury were not imputable to a ship, it not being shown that the ship was negligent in selecting them.

Physician, Consulted for Examination Only, as Witness.—The Supreme Court of Wisconsin says that, in James vs. state, a child who was alleged to have been raped was taken by her mother to a physician a few days after the alleged offense, to be examined for the purpose only of determining whether she then had a venereal disease, it appearing that the party accused of committing the rape was suffering from that disease at the time of the alleged offense. The physician was called on the stand and was allowed to testify, against objection, as to the results of his examination, and this ruling was assigned as error on the ground that the information obtained by him was privileged under section 4075 of the Revised Statutes of Wisconsin of 1898. But the Supreme Court holds that the ruling was correct, because such information is privileged only when required and obtained for the purpose of enabling the physician to prescribe for the patient as a physician or to act as a surgeon.

Liability for Care of Smallpox Patients.—The Supreme Court of Iowa says, in the case of Resner vs. Carroll County, an action brought by a physician to recover for services rendered in caring for a smallpox patient in 1902, that the statute in force at the time the services were rendered and the bill approved and presented to the county board provided that persons found to be afflicted with smallpox should be taken charge of and cared for by the local board of health, the expense thereof to be charged to such person, or those liable for his support, if able; otherwise such expense to be charged to the county. Code 1897, section 2570. And under the statute as it then stood the power to fix the fees or charges—those of the physician, for instance—was in the local board of health. The county board had no right to regulate such fees or charges. Its duty was to order the same paid as audited and approved by the local board. It followed that when the local board met and approved the bill of the plaintiff, and it being true that the patient and those liable for his support were unable to pay, the indebtedness against the county became absolute. And this was true without reference to certification, or the want thereof, to the county board. The board bound no one by its action in allowing a portion of the bill and rejecting the rest. As the demand of the plaintiff against the county was of a fixed and definite sum, he waived no right by taking the amount allowed. He had no conference with the board, which alone was authorized to act on the part of the county, and the acceptance of part of a fixed sum due did not operate to bar a claim for the balance unless mutually agreed, and on consideration. In the case of an unliquidated demand a different rule may obtain.

Consent to Postmortem Examination Construed.—The Supreme Court of Iowa says, in the case of Winkler vs. Hawkes and others, an action brought by a widow to recover for physical and mental anguish alleged to have been caused by the wrongful mutilation of the body of her husband and the removal of some of its parts, that it fully appeared that she understood the purpose of the examination was to ascertain the cause of her husband's death, and that she consented to it for that purpose. The consent being given, the Supreme Court thinks it must be held to imply a permission to the surgeons to conduct such examination in the approved and usual manner practiced by their profession; and, if the removal of some of the organs for microscopic examination was necessary or proper to effect the purpose of the postmortem, then the defendants would not be guilty of an actionable wrong in so doing, unless such permission was expressly withheld at the time the consent to open the body was given. It was true that the plaintiff claimed she made it a condition of her consent that none of the parts should be taken away, but that question was submitted to the jury, which evidently found against her contention in this respect. Moreover, the condition that none of the parts should be taken away did not necessarily prohibit the taking of such parts to the office of the surgeons for examination, if they were duly returned and replaced for burial, and this appeared to have been done. The fact seemed to be that the surgeons removed the heart and liver, in whole or in part, from the body, and took them from the undertaker's room for further examination; and, on hearing that the plaintiff objected thereto, the parts were at once returned and buried with the body. There was no indication that the surgeons acted otherwise than in entire good faith, and the court believes that their acts in the premises were fairly within the scope of the consent which the plaintiff conceded that she gave.

Statements of Injured Person to Physician.—The Court of Appeals of Kentucky says, in the case of Shade's Administrator vs. Railroad, Transfer and Bridge Co., that it was contended by the plaintiff that the declarations made to her physician in explanation of the cause of her injury by an injured party, and made to enable him to treat it, were of the essential circumstances of the case (*res gestae*), and receivable in evidence as such. Here the party whose statement was offered to be proved, the court says, was suffering from physical injury. What she said to her physician as to the pain it then caused her, and the effect it had on her senses, was necessary for him to know in order that he might intelligently treat the injury. Under such circumstances, it is presumed that the party suffering will state truly how she is affected, as otherwise the medical man might be at a loss as to the remedies needful to her condition. The incentive for a fair statement is so great that the presumption is she will not hazard an untruth to better her financial condition, as by fabricating a basis of claim against the person charged with her injury at the expense of her permanent health, or may be of her life. For that reason the law will allow the proof of what she said to her physician at the time of his examination as a part of the *res gestae.* What the injured party may have said to any one at the time of the injury, or so immediately after it as to be regarded part of it, as being the verbal part of a continuing occurrence, would also be admitted, on familiar grounds. What was said after the lapse of some minutes—a half-hour or so in this case—to the attending physician, to aid him in determining the nature of the injury and to prescribe a remedy or treatment, is allowed, as an extension of the same rule of evidence. It rests logically on the necessity of the case. It is matter proper to be shown, and not susceptible generally of being otherwise proved. But it must stop with the necessity for it. It was necessary for the physician to know whether the patient was suffering, and where the pain was, and as to its character. It was also proper that he should know how the injury was inflicted, as on that knowledge his treatment in part, might depend. So it was competent to show that the patient said she had received a blow on her head, if she did say it, and how she was otherwise hurt. But it was wholly immaterial to the physician's understanding what it was necessary for him to know in treating the injuries whether she fell on the defendant's bridge or elsewhere, or that she fell on ice.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 18.

1 *Cholecystitis as a Complication of Lobar Pneumonia: with a Report of Three Cases and Remarks on Icterus in Pneumonia. J. M. Anders, Philadelphia.
2 Primary Tuberculosis of the Female Breast, with a Report of a Recent Case. G. W. Spencer, Philadelphia.
3 Dissertation on Temperament, Diathesis, Dyscrasia, Predispositon, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (To be continued.) Homer Wakefield, N. Y.
4 *Surgical Treatment of Bright's Disease. W. H. Thomas, Philadelphia.
5 Etiology and Pathology of Bright's Disease. W. E. Robertson, Philadelphia.
6 *Postoperative Nasal Hemorrhage; Calcium Chlorid; Secondary Anemia; Rapid Recovery. R. W. Wilcox, N. Y.

1. **Cholecystitis Complicating Pneumonia.**—Three cases of lobar pneumonia complicated with cholecystitis are reported by Anders. The cases apparently were of the catarrhal type and of mild grade, since resolution promptly occurred in two. None of the cases was sufficiently well marked to constitute a grave complication. The local symptoms and physical signs are characteristic, but the type of condition is not severe, hence, to a great extent, it is overshadowed by the grave underlying or pneumonic condition. No general or constitutional symptoms distinctive of the lesion are recognizable. The clinical course of the pneumonia is not materially modified, as a rule, by the occurrence of catarrhal cholecystitis as a complication. The source of the infection is probably the gastrointestinal tract or less commonly, perhaps, the channel of transmission of infection is a blood vessel or a lymph vessel.

4. **Surgical Treatment of Bright's Disease.**—A review of the literature of decapsulation of the kidney made by Thomas shows that of 31 cases of chronic interstitial nephritis, 10 patients (33.24 per cent.) were cured, and 4 (12.7 per cent.) died within two weeks. Of 12 cases of chronic parenchymatous nephritis 3 patients (25 per cent.) were cured, and 1 (8.3 per cent.) died within two weeks. Of 25 cases of chronic diffuse nephritis 3 patients (12 per cent.) were cured, and 2 (8 per cent.) died within two weeks. The anesthetic was nitrous oxid and ether in 42 cases, ether alone in 17 cases, nitrous oxid and oxygen in 8 cases, chloroform alone in 2 cases, nitrous oxid and chloroform in 1 case, nitrous oxid, ether and chloroform in 1 case, and nitrous oxid, oxygen, ether and chloroform in 1 case.

6. **Postoperative Nasal Hemorrhage.**—Wilcox reports a case of nasal hemorrhage following the removal of the inferior half of the middle turbinal and a small spur under cocain and adrenalin chlorid by means of the snare and saw. On the fourth day following gymnastic exercise a profuse hemorrhage occurred, which resisted the ordinary treatment and continued for six days. In the meantime the patient was given large doses of calcium chlorid, 40 grains, per day. Wilcox emphasizes the importance of the administration of calcium chlorid, either by mouth or rectum, coincidently with the surgical methods of controlling hemorrhage, and ascribes the successful issue in the case reported to the calcium chlorid given. For adults, 40 grains in two ounces of water, once daily, will accomplish the desired result.

Medical Record, New York.

March 18.

7 *Results of 1,500 Operations for the Radical Cure of Hernia in Children, Performed at the Hospital for Ruptured and Crippled Between 1891 and 1904. W. T. Bull and W. B. Coley, N. Y.
8 *Acne and Its Treatment. G. T. Jackson, N. Y.
9 *Limitations of the Value of Nitroglycerin as a Therapeutic Agent. H. P. Loomis, N. Y.
10 Physiologic Aids; or the Practical Use of Well-known Laws of the Mind. E. C. Savidge, N. Y.
11 Report of a Case of Vaginal Cesarean Section with Recovery. Simon Strauss, N. Y.

7.—The principal points in this article were covered in Dr. Coley's article in THE JOURNAL, Jan. 14, 1905, page 112.

8. **Treatment of Acne.**—Jackson places the greatest reliance on sulphur used in the form of lotio alba, to which is added a dram or more of precipitate of sulphur to each four ounces of the mixture. He advises the restriction of the use of the Roentgen ray to intractable cases, and to the disease as it occurs on the trunk. When they are used it is advised that a moderately hard tube should be used, that the patient should be seated from 8 to 10 inches from the target, that the exposure should last from three to six minutes and that the sittings should be at intervals of three or four days for from ten days to two weeks.

9. **Value of Nitroglycerin.**—Experiments have been carried on by Loomis for the purpose of determining the therapeutic scope of nitroglycerin. He found that the usual dose of 1/100 of a grain is entirely too small to produce any effect in pathologic conditions; 1/50 of a grain is a minimum dose, although persons vary greatly in their susceptibility to its influences. A great many are not affected at all, even by large and repeated doses, especially persons of phlegmatic temperament. In some people a tablet of 1/100 grain by the stomach will produce no effect, but let that same individual dissolve a 1/100 grain tablet in the mouth and the physiologic effect of the drug will be notable. Loomis, however, considers nitroglycerin a perfectly safe drug to use. He has never seen any ill-effects following its use even in large and repeated doses. High arterial pressure in man is not perceptibly affected by it, nor is dilatation of the blood vessels apparent. The ordinary dose of 1/100 of a grain every four hours could not possibly have any effect on the arteries. Although nitroglycerin is said to increase the quantity of the urine in chronic Bright's disease Loomis was never able to satisfy himself that any increase seen was due to this drug. He believes that in conditions due to arterial spasm, so-called, such as angina pectoris, migraine and asthma, nitroglycerin may be of benefit, in full doses

often repeated, but not in arterial sclerosis where the arteries themselves are more or less changed.

Boston Medical and Surgical Journal.

March 16.

12 Abuse of Medical Charity. G. W. Gay, Boston.
13 Some Abuses of Medical Charity. H. Derby, Boston.
14 Abuse of Medical Charity in London. J. W. Elliot, Boston.
15 Private and Public Hospital. Alfred Worcester, Waltham.
16 Regulation of Medical Charity. F. Cobb, Boston.
17 Medical Charity; a Possible Remedy. John C. Munro, Boston.
18 Medical Charity at the Massachusetts General Hospital. F. A. Washburn, Jr., Boston.
19 Physician and the Hospital Private Patient. E. W. Cushing, Boston.
20 Certain Faults in Medical Charities. Samuel Crowell, Dorchester.
21 Abuse of Medical Charity in the Suburban Districts. Charles H. Cook, Natick, Mass.

New York Medical Journal.

March 18.

22 Gonococcus Infections in Children, with Especial Reference to Their Prevalence in Institutions and Means of Prevention. (To be concluded.) L. Emmett Holt, N. Y.
23 After-treatment of Abdominal Sections with Eserin Salicylate. Daniel H. Craig, Boston.
24 New York Board of Health and the Antispitting Crusade. W. Freudenthal, N. Y.
25 Opium Smoking Readily Cured. W. H. Jeffreys, Shanghai, China.
26 Subcutaneous Injuries of the Abdominal Walls and Viscera. (Concluded.) D. N. Eisendrath, Chicago.
27 *Tuberculous Meningitis with Congenital Stricture of the Rectum. Clinical and Pathologic Reports. H. S. Wieder, Philadelphia, and H. L. Springer, Wilmington, Del.
28 *Study of the Stomach Function in Pulmonary Tuberculosis J. E. Munson, Ann Arbor.
29 Case of Acute Turpentine Poisoning. G. Hausser, Cincinnati.

27. Tuberculous Meningitis with Rectal Stricture.—The tuberculous meningitis in the case reported by Wieder and Springer occurred in a child 4½ years of age with a family history of tuberculosis on the mother's side in three members of the family. Of bearing in the previous medical history was the fact that she was obstinately constipated during the first six months of her life, never obtaining a bowel movement except by artificial means. The absence of inflammation and the previous history are evidence that the stricture was probably congenital. The patient died as a result of the meningeal trouble.

28. The Stomach Function in Tuberculosis.—Munson has examined the stomach function in 26 cases of pulmonary tuberculosis and has found a marked tendency to hypoacidity, which is frequently transformed into anachlorhydria. The motor power is undisturbed. The first group examined included 10 cases early in the disease, the duration not exceeding nine months. In 8 cases there was a history of stomach symptoms, which in some cases antedated the lung condition and in others introduced or accompanied it. In 4 cases hydrochloric acid was always found, in 1 it was always absent, in 5 it was variable. Peptic digestion and the motor power seemed unchanged. In a second group of 11 cases of intermediate severity the duration of the disease was from five months to two years. Hydrochloric acid was present in 6 cases, absent in 3, variable in 1 and doubtful in 1. Peptic digestion was undiminished. In 5 cases of advanced tuberculosis the qualitative test for free hydrochloric acid was present once, absent twice, and at times was found in the remaining 2 cases. Peptic digestion was usually decreased. The acidity in the first group was about normal, but in the other two groups it was markedly diminished. Munson says that one may assume, in cases where previous dyspepsias can be eliminated, that the digestive disturbances which introduce or accompany the tuberculous process are manifestations of the reaction of the system to toxic products; a reaction analogous, perhaps, to the rise of temperature following the administration of tuberculin.

Medical News, New York.

March 18.

30 *Fresh-Air Treatment of Surgical Tuberculosis. L. R. Williams, New York.
31 *Aural Affections in Children; Necessity for Their Early Recognition by the Family Practitioner. H. Jarecky, New York.
32 *Widal Test for Practicing Physicians. J. H. Borden, New York.
33 Technic of Perineal Prostatectomy. G. R. Fowler, Brooklyn.
34 Superficial Inguinal Hernia, with Report of a Case. A. E. Sellenings, New York.
35 Importance of the Physical Examination of the Back in General Diagnosis. J. P. Arnold, Philadelphia.
36 Local Anesthesia by Cataphoresis and by Mechanical Pressure. W. J. Morton, New York.

30. Fresh-Air Treatment of Surgical Tuberculosis.—Williams speaks of the work that is being carried on by the New York Association for Improving the Condition of the Poor at its temporary hospital at Coney Island. The children suffering from surgical tuberculosis live in tents and are treated much like pulmonary cases as regards fresh air, good food and an abundance of it, and rest. The children are given daily sea baths until October. The windows in the wards are kept open except for a half-hour during the time the children dress and undress. Considerable stress is placed on the care of the mouth and teeth. The children brush their teeth twice daily and the services of a dentist are called when necessary. The patients, almost without exception, have improved, though the hospital has cared for every variety of the disease, the far advanced as well as the incipient.

31. Aural Affections in Children.—Attention is called by Jarecky to the necessity of the early recognition of ear complications in children by the family practitioner. Pus formation may often be prevented, or, if already formed, its absorption may be checked. Early paracentesis may prevent extension from the tympanum to the mastoid cells, brain, internal ear and sinuses, as well as the partial loss of hearing. He advises that all cases of earache and discharging ears should be properly attended to, and that in all inflammatory diseases the ears should be repeatedly examined during the course of the disease.

32. Convenient Widal Test.—The emulsion used by Borden was made from a well-tried strain of typhoid bacilli grown for twenty-four hours on slant agar in large tubes. The bacilli are washed from the medium with a mixture of sterile salt solution, 450 parts; glycerin, 50 parts; 95 per cent. carbolic acid, 2.50 parts; 50 c.c. of the solution are sufficient to wash one large agar tube. After one week the solution becomes translucent and the bacilli on being transplanted failed to grow. It is then ready for use, and is permanent, if kept in sterile bottles in a moderately cool and dark place. With such a suspension 30 cases of typhoid and 27 controls were tested. Of the 30 cases, 29 agglutinated in an accurate dilution of 1 to 100. None of the controls reacted with the serum diluted 1 to 40. The reaction, if positive, occurred within 20 hours. Six controls stood for eight days without apparent change of any sort, and many others from 48 to 72 hours. The average day when the reaction was obtained first was the patient's seventh day in bed. Twenty-five cases were positive on the first examination—the earliest possible on admission. The technic of the method is as follows: 1. The blood is collected in bulbs with a small vent-hole at one end and drawn to a capillary tube at the other. It is only necessary to prick the ear rather briskly with a Hagedorn needle and to keep the tip of the bulb to the exuding drop. When the bulb is two-thirds full it is held for one minute in a slanting manner and laid aside for from one to two hours, when about 0.2 c.c. of serum will have separated. 2. From a modified Schuster dropping bottle with a very small lumen in a spout, a small graduated test tube is filled to the 1 c.c. mark with sterile salt solution. The large end is broken from the bulb at the file mark, and with a capillary tube drawn to a long point and graduated in one-hundredths of a c.c., enough serum is drawn up to make, with the salt solution, the dilution required. The pipette with the contained serum is then inserted into the test tube and thoroughly washed out with the salt solution. 3. From another dropper enough of the typhoid suspension is added to bring the fluid in the test tube to the 2 c.c. mark. The mouth of the tube is then stopped with a plug of non-absorbent cotton, inverted once or twice and set aside in a dark place. If the reaction is positive a marked granularity of the fluid in the tube will be noted. Following this there will be seen distinct clumps beginning to sink toward the bottom, and at the conclusion of the reaction the fluid above will be linty and free from clumps and the point of the tube will contain a small, white flocculent mass of agglutinated bacilli. The method is particularly adapted for use by the general practitioner because of its simplicity and freedom from danger.

Lancet-Clinic, Cincinnati.

March 18.

37 Nitrous Oxid-Ether Series by Means of a New Inhaler. S. Iglauer, Cincinnati.
38 Cesarean Section. J. U. Barnhill, Columbus.
39 Radical Cure of Inguinal Hernia. A. Schachner, Louisville.

St. Louis Medical Review.

March 11.

40 Burns and Their Treatment in General Practice. A. S. Daggette, Pittsburg.
42 Synopsis of the Nutrition of Man of Dr. Walther Nic Clemm, of Darmstadt, Germany. (Continued.) A. Rose, New York.

Laryngoscope, St. Louis.

February.

43 Results of Partial Inferior Turbinectomy. G. B. McAuliffe, New York.
44 *Therapeutic Value of Medicated Ointments in Certain Affections of the Nasal Chambers. A. W. MacCoy, Philadelphia.
45 Primary and Secondary Tonsillar Hemorrhage Following Tonsillectomy with Tonsillotome and Snare. E. J. Brown, Minneapolis.
46 A Century of Intubations. G. F. Cott, Buffalo.
47 Syphilitic Tracheostenosis Dilated During Active Ulceration by a Long Intubating Tube. L. M. Hurd, New York City.
48 New Tongue Depressor. A. G. Bryant, Boston.
49 Improved Nose, Throat and Ear Instruments. E. Pynchon, Chicago.

44. **Medicated Ointments in Nasal Disorders.**—A note of warning is sounded by MacCoy with regard to the increasing bent toward surgical procedures for the relief of diseases of the nasal chambers. In many cases medicinal treatment proves far more effective than surgical intervention. The constant and persistent use of nasal washes, especially during the winter season, tends to harmful results. By the employment of curative medicaments in the form of soft ointments in the nasal chambers certain risks following the use of washes can be avoided and a speedier cure is effected. MacCoy has largely substituted the use of nasal washes, sprays and powders for home treatment by the prescribing of ointments, based on the individual requirements and the local needs of each patient. These ointments should be dispensed in collapsible tin tubes as a protection from contamination.

Brooklyn Medical Journal.

March.

50 Some Forms of Dyspnea and Their Treatment. J. A. McCorkle.
51 Five Obstetrical Examinations. R. L. Dickinson.
52 *Semeiology of Vomiting in Children. E. H. Bartley.
53 *Intestinal Anastomosis with the Aid of Accessory Support to the Intestinal Wall; also a Description of An Operation for Suturing the Intestine Without Support. G. Wackerhagen.
54 Anterior Metatarsalgia; Report of Six Cases. C. D. Natler.
55 *Duke's Disease. B. Edson.
56 Mirror Writing in the Right Handed. R. Kingman.

52. **Vomiting in Children.**—Bartley directs attention to the distinction that must be made between habitual vomiting or eructation of food in infants and young children and true vomiting. The classification of vomiting adopted by him is the following: 1, Gastric vomiting occurring in cases of acute gastric indigestion; 2, reflex vomiting caused by irritation or inflammation in the intestine, peritoneum, appendix, lungs, pleura or brain; 3, cerebral vomiting, accompanying both acute and chronic irritation of the brain and its membranes; 4, bloody vomiting, which must be differentiated from false hematemesis; 5, febrile or toxic vomiting, occurring at the outset of a number of affections, specially scarlatina and smallpox; 6, cyclic or recurrent vomiting, occurring without apparent cause; 7, vomiting of exhaustion, seen during apparent convalescence from diphtheria, scarlatina, pneumonia, etc.

53. **Intestinal Anastomosis.**—The various mechanical aids to intestinal anastomosis which have been brought forward by Wackerhagen are reviewed in this article. He also describes an operation in which he uses rubber-covered clamps. Openings are made in the intestine, through which the rubber-covered blades are introduced and clamped and the intestines are closed by a simple, continuous Lembert suture. To those who prefer plain suturing in intestinal anastomosis he suggests the following: After excision and closure of the ends of the intestine the two segments are brought together side by side and guy loops are introduced at points opposite the mesentery representing the length of the anastomosis to be made. A colored silk suture about 24 inches long with a knot 10 inches from its end, is introduced one-half inch beyond loop B, and the Cushing suture is inserted between the two segments toward loop A, and to a point one-half inch beyond loop A, where a backward retention stitch is taken. Slit with scissors, one segment of intestine parallel to and one-quarter inch from the Cushing suture; the same is done with the other segment, and the three inner edges of the slits are brought together by a continuous overhand suture, including all the coats. The same is done with the outer edges. Beginning at loop B, the Cushing suture is threaded and applied as a second Cushing stitch toward loop A, where the end is tied to that of the original Cushing suture. This method is essentially the plan of Abbe and Halsted with simplified technic. Two sutures are used, the Cushing outside and the overhand inside, the work being done continuously back and forth from below upward.

55. **Duke's Disease.**—Edson describes 64 cases of a contagious eruptive disease of an unusual character which occurred among the inmates of a hospital for children. The period of incubation was about fourteen days. The eruption, which was distinctly papular, pale in color, with no tendency to bat's wing grouping, appeared first on the face, particularly around the mouth, and extending to the cheeks, forehead, neck, and downward over the body and limbs. The time to the full development was one day. It disappeared in the order of its onset inside of two or three days. The temperature did not go over 100; there was no increase in pulse or in respiration; no coryza or bronchitis; no loss of sleep or appetite; no pruritus; no enlargement of glands; no desquamation, except in one case; no complications and no sequelæ. In about a dozen cases Koplik's spots were present. The ages of the children were from 4 to 13 years; only one adult, a woman of 32, contracted the disease, although others were exposed to it. Edson is of the opinion that these were cases of the Fourth disease, or Duke's disease, which he believes is really a rubella morbilliforme.

American Journal of the Medical Sciences, Philadelphia.

March.

57 *Review of 1,000 Operations for Gallstone Disease, with Special Reference to Mortality. W. J. Mayo and C. H. Mayo, Rochester, Minn.
58 Pseudo-malarial Types of Infective Endocarditis. W. Coleman, New York City.
59 Disseminated Syphilitic Encephalitis. A. M. Barrett, Danvers, Mass.
60 Effect of Alternating Currents of Moderate Frequency on Dogs. G. W. Crile and J. J. R. MacLeod, Cleveland.
61 Physiologic Relationship of Blood Plasma Proteids. T. S. Githens, Philadelphia.
62 *Incidence of Gastric and Duodenal Ulcer in Philadelphia. A. P. Francine, Philadelphia.
63 *Albuminuria in Appendicitis and Hernia. F. E. Bunts, Cleveland.
64 *Is Transplantation of Cord Necessary in Radical Cure of Inguinal Hernia? F. G. Connell, Salida, Col.
65 Case of Chronic Pyelitis Due to Bacillus Coli Communis Simulating Renal Tuberculosis. L. W. Allen, San Francisco.
66 *Gunshot Wounds of Ureter; Uretero-vesical Anastomosis. G. T. Vaughan, Washington.
67 Scabies in the United States and Canada. J. N. Hyde, Chicago.
68 X-Ray Treatment of Cutaneous Epithelioma. C. M. Williams, New York City.
69 *Acute Hemorrhagic Encephalitis. E. E. Southard and C. W. Keene, Boston.
70 Primary Splenomegaly—Gaucher Type. N. E. Brill, F. S. Mandlebaum and E. Libman, Philadelphia.
71 Suctorial and Other Insects as Plague Carriers M. Hertzog, Chicago.

57.—See abstract in THE JOURNAL of December 24, p. 1988.

62.—Ibid., of March 25, p. 980.

63. **Albuminuria in Appendicitis and Hernia.**—In order to determine the relationship between albuminuria and hernia and albuminuria and appendicitis Bunts studied 50 consecutive cases of each affection. His results were as follows: Appendicitis, 50 cases; of these 43 were operated on during the attack and 7 between attacks, with 2 deaths. Examination of

the urine showed albumin in 18 cases previous to operation, disappearing after operation in 5 cases. Twenty patients who had previously been free from albuminuria developed it after the operation, making a total of 33 in whom it was present subsequent to operation. Hernia (non-inflammatory), 50 cases; no deaths. Of these 11 showed albumin in the urine before operation, disappearing after operation in but 2 cases. In 11 new cases albuminuria developed after operation, making a total of 20 in whom it was then present. Thus, of the inflammatory cases, 18, or 36 per cent., had albumin before operation, while of the non-inflammatory cases only 22 per cent. had albumin; 13, or 26 per cent., of the former had it both before and after, and 18 of the latter were similarly affected. Of the former the albumin disappeared in 28 per cent. after operation, while in the latter it disappeared in 18 per cent. Although these statistics are very meager, Bunts believes that they emphasize the fact that albumin is found in a very large percentage of surgical cases; that it can not be considered on any ground yet established that it is of itself a contraindication to operation.

64. Is Transplantation of Cord Necessary in Hernia?—Connell recommends for the radical cure of inguinal hernia the operation in which the cord is left *in situ*. As objections to the transplantation of the cord he mentions: 1, Interference with the circulation and the function of the testes; 2, strengthening the posterior wall at the expense of the anterior; 3, the complexity of the operation and the greater possibility of infection and, 4, recurrence. He has operated on 32 cases in which the cord was not transplanted and the internal oblique was sutured to Poupart's ligament, according to the Ferguson technic. The external oblique was sutured in various ways. Fourteen patients have been traced and heard from recently; 2 have had a recurrence, but as 1 was complicated by an undescended testicle and the other was operated on for a recurrence, after a Bassini operation, Connell believes that they would not serve as arguments against the method.

66. Gunshot Wounds of Ureter.—In 2 cases cited, Vaughan performed ureterovesical anastomosis, an operation which is indicated whenever the lower part of the ureter has been divided or resected, and the proximal ends are long enough to reach the bladder. It is preferable to a uretero-ureteral union, because the operation is performed more easily; it is less likely to be followed by stricture, and in case a stricture does form, it is more accessible and easier to treat.

69. Acute Hemorrhagic Encephalitis.—A study of encephalitis due to the *Staphylococcus pyogenes aureus* was made by Southard and Keene. Three of the patients were males and 3 were females. Their ages varied from 5 to 55 years. In every case except one, in which the history was unknown, there was a history of antecedent disease. One patient was convalescing from scarlet fever; a second was five weeks recovered from diphtheria and had a chronic endocarditis of long standing; a third was under treatment for chronic urethritis; a fourth had pleurisy with effusion and was but three months beyond the menopause, and a fifth had a history of excessive use of alcohol for many years. The onset was sudden in 3 cases, with hemiparesis and unilateral convulsions in 1; chilly feelings and frontal headache followed by echimosis in a second, and malaise, manifold pains, echimoses and cerebral symptoms in the third. In another case the onset was of the fulminant type. In the remaining two cases the onset was gradual. The distribution of the brain lesions was as follows: Four cases showed areas of frank and somewhat voluminous hemorrhage, as a rule involving primarily the subcortical region. Three cases showed multiple echimoses and small abscesses of the cortex or subcortical region, with or without gross evidence of surrounding edema. In 3 cases edema of the piameter was remarked. In 2 cases there was noted a hemorrhagic effusion into the lateral ventricles, and in 2 cases in which the temporal lobe was involved the middle ears showed no lesion. The histologic picture varied from diapedesis and slight leucocyte emigration to abscess and acutely destructive hemorrhage with phagocytosis.

Colorado Medicine, Denver.

March.

72 Care of Stump in Appendicitis. R. W. Corwin, Pueblo, Colo.
73 When Not to Operate in Appendicitis. H. G. Wetherill, Denver.
74 *Complications and Sequels of Appendicitis. W. W. Grant, Denver.
75 Early Diagnosis and Treatment of Appendicitis with Personal Report from 100 Physicians Who Have Suffered from the Disease. I. B. Perkins, Denver.

74. Complications and Sequels of Appendicitis.—Appendicitis is classed as simple by Grant, when in the acute stage, perforation or gangrene has not occurred. Abscess, even though it is circumscribed, is a complication as well as a result. Gangrene is a common complication. He cites a case of left subdiaphragmatic abscess occurring as a sequel in a girl 7 years of age, operated on by him for a retrocolic abscess of the appendix by an incision over the most prominent part above the iliac crest and the ascending colon, with a second opening for drainage in the loin, no effort being made to find the appendix. Fourteen years later the patient fell and not long after a swelling appeared at the umbilicus and broke, discharging pus for several months. Grant believes this was an infected cholecystitis due to the former appendicitis. Just a year before the accident this patient had an abscess in the left hypogastrium, which was incised just within the anterior superior spinus process of the ileum. The opening had momentarily closed, the abscess refilled and extended from the iliac crest to the costal arch. It was opened, giving exit to a large quantity of very offensive pus. She was also expectorating freely, an offensive mucopurulent material. A diagnosis was made of abscess of the lower lobe of the left lung. This was opened and drained. Cough soon ceased and the patient made an uneventful recovery. Grant regards two phenomena as of some diagnostic significance, especially in gangrenous and suppurative cases, when the appendix is entirely in the retrocolic fossa. One, a tender point about three inches to the right of the umbilicus on a horizontal line from it, and more sensitive than the McBurney point, in these particular cases, and some two or three inches above it; the other, an infection of the glands of the neck, including the parotid. Grant also reports as complications a case of femoral thrombosis of the right leg in acute appendicitis on the second day, the man having had pulmonary tuberculosis for several years; and a case of phlebitis of a mild character, commencing in the groin, with moderate swelling in a case of acute gangrenous appendicitis. It delayed the convalescence, and for months the limbs were swollen and painful. He also cites a case of intestinal obstruction following appendicectomy due to omental strangulation of the intestine in the vicinity of an adhesion of the omentum to the middle of the appendix, which had been discovered at the time of operation. The postmortem revealed strangulation of a coil of ileum near the cecum and a kink on the transverse colon. General peritonitis, due to the colon bacillus or to the streptococcus, can be combated successfully, either at the time of operation or soon after, by free incision, breaking up adhesions, evacuating pockets of pus, cleaning the general cavity by mopping and irrigation, and then draining with gauze or tubes. In intestinal paralysis, cathartics and enemas are useless. Stomach lavage may do some good, and it should be used. The condition is best met by enterostomy and drainage, putting a tube in both ends of the intestine. If this is done before the patient is exhausted by sepsis, recovery may ensue. The so-called incarceration shock should be treated with salt infusion, adrenalin and strychnin, and abdominal section should be performed as quickly as possible. Phlebitis is treated by absolute rest and supporting measures. Pregnancy is not a contraindication to appendicectomy. For circumscribed abscess not involving the peritoneal cavity, which is protected by an adhesion wall, simple incision and drainage is the safest procedure. If the appendix is easily exposed or found it should be removed, but it is not the best surgical procedure to sever adhesions and to open the peritoneal cavity in this effort at this particular time. It is taking an unnecessary risk of infecting the peritoneal cavity. Hernia as a result of drainage can only be cured by excision of scar tissue, by sewing the divided muscles, and by uniting the fascia well over all. On account of the danger of fat necrosis in persons who have thick abdominal walls Grant often drains the fat space. After uniting peritoneum, muscles and fascia in separate layers, the two latter with chromicized catgut, a rubber drainage tube is inserted between fascia and skin and fixed by a stitch in the lower angle of the wound. The tube is removed in three or four days and the fat continues to discharge for a few days or a week. Since resorting to this method he has never had a wound break down and there is greater security against hernia.

Wisconsin Medical Journal, Milwaukee.

February.

77 Address of President of Medical Society of Milwaukee County. G. E. Seaman, Milwaukee.
78 *Surgical Treatment of Ascites Due to Cirrhosis of the Liver. W. Mackie, Milwaukee.
79 Medical Ethics. J. L. Cleary, Kenosha.
80 Glimpse into the Past, Present and Future of Therapeutics. S. R. Moyer, Monroe, Wis.

78. **Surgical Treatment of Ascites.**—The results obtained in the cases of cirrhosis of the liver treated surgically are described by Mackie. The patient has suffered severely from ascites and swelling of the feet and the lower extremities. The left lobe of the liver was nodular, the right smooth and extending below the costal arch. There were no adhesions. A large flat piece of sterile gauze was spread over the surface of the liver as far to the right and left as possible, with the idea of producing a maximum amount of localized peritonitis [illegible]quent adhesions over a large area of hepatic surface [illegible] the abdominal parietes. The omentum was caught up by the sutures closing the abdominal incision, which was parallel to the outer border of the right rectus muscle. This gauze packing was removed after forty-eight hours. During the next six months the patient had to be tapped twice, after which no fluid could be detected in the abdominal cavity and the urine was free from albumin. A capit medusæ which had formed and caused her considerable trouble gradually diminished in size. During all this time iodid of potash had been given, with saline cathartics at intervals. Two years after the operation the patient was still well and had not been troubled with ascites.

Journal of Medicine and Science, Portland, Me.

February.

1 Proprietaries in Present Day Prescriptions. W. S. Jackman, Orono.
2 The Conditions of Pharmacy in the State of Maine. F. H. Wilson, Brunswick.
3 Some Advantages of the Metric System. W. H. Kimball, Portland.

Virginia Medical Semi-Monthly, Richmond.

February 24.

4 Mastoiditis. W. F. Mercer, Richmond.
5 Sarcoma of Cervix Uteri. J. E. Phillips, Suffolk, Va.
6 Some of My Mistakes in Obstetric Practice. J. T. Graham, Wytheville, Va.
7 Condum Used to Stop Bleeding Nose. W. W. Wilkinson, La Crosse, Va.
8 A Plea for the Early Treatment of Strabismus. O. Wilkinson, Washington, D. C.
9 Symptoms and Diagnosis of Cancer of the Stomach. H. S. MacLean, Richmond.
0 Water—Its Uses and Its Dangers in Medicine. W. H. Wallace, Disputanta, Va.

Dominion Medical Monthly, Toronto.

February.

1 A Case of General Infection by the Staphylococcus Pyogenes Aureus, Streptococcus Pyogenes and Pneumococcus, with a [illegible] Sequence of Clinical Manifestations. H. B. [illegible]
92 Th[illegible] egnancy. S. J. Elkin, Winnipeg.

Kansas City Medical Record, Kansas City.

February.

93 The Surgical Treatment of Goiter. E. von Quast, Kansas City.
94 Lack of Development a Cause of Disease. M. G. Roberts, Lamar, Mo.

Southern Medicine and Surgery, Chattanooga.

February.

95 The Treatment of Lobar Pneumonia. G. R. Butler, Brooklyn, N. Y.
96 Facts and Fallacies in Gastrointestinal Work. L. Amster, Atlanta, Ga.
97 President's Address. Pure Food and Drug Legislation. F. B. Sloan, Cowan, Tenn.
98 Reinforcement of Weakened Immunity, in Lymphatic Tuberculosis, with the Toxins of Tubercle Bacilli. J. R. Briggs Dallas, Tex.
99 Some Popular Medical Fallacies. J. M. Kennedy, Knoxville, Tenn.

Texas Medical Journal, Austin.

February.

100 Chronic Gastritis. J. R. Hunter, Hornsby, Texas.
101 Digitalis and Veratrum in the Treatment of Pneumonia. J. W. Carhart, Austin.

Columbus Medical Journal, Columbus, Ohio.

February.

101½ "Angina Pectoris." H. M. Hazleton, Lancaster, Ohio.
102 Special Topography of the Ureter and Tractus Nervosa. B. Robinson, Chicago.
103 Lungs in Health and Disease—More Particularly the Vesicular Murmur. W. N. Unkefer, Piqua, Ohio.
104 Antitubercular Dispensaries. L. G. De La Mache, Columbus, Ohio.

Southern California Practitioner, Los Angeles.

February.

105 Cholelithiasis. W. W. Beckett, Los Angeles.
106 Mediastinal Tumor. W. P. Millspaugh, Los Angeles.
107 Sarcoma of the Choroid. A. C. Rogers, Los Angeles.

Oklahoma Medical News-Journal, Oklahoma City.

February.

108 The Hodgen Splint. J. A. Matlock, Galesbur[illegible] ng
109 Stammering and Stuttering. J. M. [illegible]eriod of incuba-
110 The Surgeon's Assistant. F. H. [illegible]ption, which was dis-
Wes[illegible] in color, [illegible] no tendency to bat's wing
[illegible]d first on the face, particularly around the
111 [illegible] Tanner, Battle Creek, Neb. [illegible] forehead, neck, and down-
112 When to Operate on Fibroid Tumors of the Uterus. [illegible] Rich, Omaha, Neb.
113 Neglected Cases. D. W. Beattie, Neligh, Neb.
114 Primary Carcinoma of the Nasal Septum. E. A. Beard, Stanton, Neb.
115 The Necessity of Combination for Mutual Benefit. J. H. Mackay, Norfolk, Neb.

Medical Fortnightly, St. Louis.

February 25.

116 Nature and Treatment of Diarrhea. R. B. Darnley, Philadelphia.
117 Case of Acute Miliary Tuberculosis with Postmortem Findings. H. A. Potts, Jacksonville, Ill.

Canadian Journal of Medicine and Surgery, Toronto.

March.

119 Case of Multiple Neuritis with Ataxia Simulating Tabes Dorsalis; Recovery. C. Meyers, London.
120 Medical Men and the New Provinces. J. Hunter.

Medical Examiner and Practitioner, New York.

January.

121 Some Urological Problems Encountered by the Medical Examiner. J. Allen Paton, Chicago.
122 The Indication of an Intermitten[illegible] Pulse in Relation to Life Examinations. [illegible]
123 The Significance of the Cardio-[illegible] Morton, Philadelphia.
124 The Importance of Accentuation of the Second Pulmonic Sound. T. J. Mays, Philadelphia.
125 Gynecologic Diagnosis in Relation to Life Insurance. W. Krusen, Philadelphia.
126 Macroscopic Appearance of Urine in Relation to Life Insurance. H. M. Christian, Philadelphia.
127 Hypertrophied Prostate. R. L. Loux, Chillicothe, Ohio.
128 Diseases of the Rectum in Relation to Life Insurance. J. C. Brick, Philadelphia.
129 Insanity and Epilepsy in Relation to Life Assurance. W. R. Gowers, London.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

March 4.

1 *Prospects and Vicissitudes of Appendicitis After Operations. F. Treves, London.
2 Some Peculiarities of Appendicitis in the Female Sex, with Special Reference to Appendicitis Occurring During Pregnancy. G. Heaton, Birmingham.
3 Relationships Between Colitis and Appendicitis from a Surgical Point of View. C. B. Lockwood.
4 Operative Treatment of Certain Severe Cases of Indigestion. W. B. Clarke.

1. **Appendicitis After Operation.**—The degree of imperfect relief or of imperfect recovery after operation, and the complications which may attend operation and which may be re-

garded as accidental or independent of a direct surgical result of the case after appendicectomy are the subjects considered by Treves. In 45 patients examined by Treves, and who complained that they were no better for the operation which had been performed in the quiescent period, the findings were as follows: Appendix imperfectly removed, 2 cases; ovarian trouble coexisting, 9 cases; persisting or relapsing colitis, 8 cases; persisting local pain, 7 cases; neurasthenia or hypochondriasis, 5 cases; continued attacks due to gallstones, 3 cases; due to colic, 2 cases; due to movable kidney, 2 cases; due to renal calculus, 1 case; an unexplained cause, 1 case, and a tender mass in the right iliac fossa, 5 cases. The following imperfect results may follow the evacuation of a perityphlitic abscess: Persistent sinuses, 40 per cent.; recurring abscesses, 24 per cent.; recurring attacks of appendicitis, 16 per cent.: fecal fistulæ, 12 per cent.; inflammatory deposits in the iliac fossa, 8 per cent. Treves considers these figures of little value, as they do not represent the experience in practice of any one surgeon. Although Treves is of the opinion that the appendix should be removed in any case in which the least trouble is experienced, yet, he says, the following arguments may be urged against the establishment of the rule that in every case of abscess (in which the appendix has not been removed) it should be excised at the first convenient opportunity: 1. The most liberal estimate shows that 83 patients out of every 100 will never have another attack. 2. The risk of a second attack is comparatively small. 3. In those cases in which an abscess has formed, although the operation is often easy, it is frequently not only very difficult but distinctly dangerous. 4. The evidence that an abscess has burst into the bowel is not always conclusive. The discharge may be decomposed and long retained mucus. The following complications were met with in a series of 1,000 cases: Fecal fistula, 49 cases; thrombosis of the femoral vein, 12 cases; intestinal obstruction, 10 cases; bronchopneumonia, 17 cases; pleurisy with effusion, 14 cases; without effusion, 2 cases; empyema, 7 cases; acute bronchitis, 4 cases; pulmonary embolism, 1 case; non-suppurative parotitis, 4 cases; pylephlebitis, 4 cases; residual abscess, 11 cases; secondary abscess, 12 cases. In 6 of the 1,000 cases the appendicitis was associated with pregnancy. Of the total number of cases (1,000) 684 were males and 316 were females. Operation was performed during the quiescent period on 364, 4 resulting fatally. In cases with local peritonitis but no pus, 39 operations were performed, with 5 deaths; in cases with abscess, 431 operations, with 35 deaths; in cases of general peritonitis, with or without abscess, 166 operations, with 127 deaths. Of 264 cases of abscess or of general peritonitis further attacks were complained of in 27 cases, or 10.2 per cent. Of 242 cases of operation during the quiescent period, further attacks were complained of in 4.5 per cent. Of 107 cases of abscess or of general peritonitis, in which the appendix was said to have been removed, only 6 complained of further attacks. In 122 cases in which the appendix was not removed 21 patients complained of further attacks.

The Lancet, London.

March 4.

5 Changes Produced by Inflammation in the Conjunctiva. M. S. Mayon.
6 Peritonitis, a Bacteriologic Study. L. S. Dudgeon and P. W. G. Sargent.
7 Plastic Surgery. C. B. R. Keetley, London.
8 Treatment of Severe Curvatures in the Tibia by Means of Manual Osteoclasis. T. H. Openshaw, London.
9 Cause of Pain in Cases of Gastric Ulcer and Its Bearing on the Operation of Gastrojejunostomy. C. W. M. Moullin, London.
10 Case of Recurrent or Successive Ovarian Papilloma with Sequent Ventral Hernia, Followed by Cervical Epithelioma; Two Abdominal Celiotomies; Operation for Ventral Hernia; Vaginal Hysterectomy; Recovery. E. S. Bishop, Manchester.

The Dublin Journal of Medical Science.

March.

11 A Case of Chronic Lymphaemia. E. J. McWeeney.
12 The Principal Results of the Census of the United Kingdom in 1901. R. E. Matheson.
13 Notes on Chinese Medicine. Samuel Synge.
14 Course and Treatment of a Case of Chorea Insaniens Associated with Pregnancy. J. Francis Dixon.
15 Sicily as a Winter Health Resort. E. Parlato.

Practitioner, London.

February.

18 Interlobar Empyema. Wm. Broadbent.
19 A Slipping Cartilage in the Knee Joint. Edmund Owen.
20 *Effect of Raw Meat on the Nitrogen Metabolism in Pulmonary Tuberculosis. "Zomotherapy." J. J. Galbraith Edinburgh.
21 Some Points in the Surgical Treatment of Intestinal Obstruction. (Concluded.) T. Carwardine.
22 Some Affections of the Cervical Sympathetic. Purves Stewart.
23 Case of Localized Empyema Associated with the Presence of Leptothrix. Paul Mathews.
24 Ethyl Chlorid as an Anesthetic in General Practice. Harvey Hilliard.
25 *Rheumatoid Arthritis; Some Observations on Its Treatment. John Orr.
26 Some Recent Work in Diseases of Children. George F. Still.
27 Review of Recent Work on Dental Surgery. Oral Sepsis. J. G. Turner.

20. Effect of Raw Meat on Nitrogen Metabolism in Tuberculosis.—The experiments conducted by Galbraith tend to show that cooking materially affects both the absorption and retention of nitrogen, in the physiologic as well as in the tuberculous subject. While the total quantity of nitrogen present in the feces on a diet of raw meat is increased, that increase is due entirely to the presence of collagen; the soluble and digestible nitrogen is actually diminished. Gelatin has been shown to be by itself incapable of sustaining nitrogen equilibrium. The chief points of interest are that raw meat causes an increased retention of nitrogen, even with a diminished intake, and it also causes an improvement in intestinal metabolism, manifesting itself in the form of a diminution of the nitrogen in the feces. Digestive leucocytosis is invariably larger on a diet of raw meat than on a diet of cooked meat. This may be corelated with the increased nitrogen retention, on the supposition that the digestive leucocytosis is the evidence of a functional activity on the part of the leucocyte, the object of the activity being the secretion of a body to link the absorbed nitrogen onto the tissue cells.

25. Rheumatoid Arthritis.—Orr speaks in favor of the treatment instituted by Balfour in 1893. Since that time he has treated a considerable number of patients in various stages of the disease, and no treatment compares in successful results with Balfour's. In many cases a considerable amount of good can be done in the way of alleviating suffering, preventing deformity and restoring the use of the limbs, and in some cases a cure is effected. The treatment consists of dieting, internal medication (the administration of arsenic and iron in small doses for a period of three weeks out of every month) and counter-irritation carried out by the employment of blisters. He advises continuing the treatment for two, three or more years, according to the extent and severity of the disease.

Revue de Chirurgie, Paris.

Last indexed page 832.

28 *(XXV, No. 2.) Traitement opératoire des ruptures sus-rotuliennes du quadriceps. E. Quénu and P. Duval.
29 *Le traitement rationnel des luxations congénitales de la hanche (hip). Etude théorique. P. le Damany (Rennes). (Commenced in No. 1.)
30 *L'oesophagotomie externe cervicale comme traitement des corps etrangers de l'eosophage (for removal of foreign bodies). Balacesco and Cohn. (Commenced in XXX, Nos. 9-10.)

28. Rupture of Quadriceps Above the Knee.—In 22 cases of suprapatellar rupture of the quadriceps the muscle was sutured. The reports of the various operations are summarized by Quénu; the results were good in every instance. Comparison with the results in the non-sutured cases shows the great superiority of this method of treatment. The list of cases operated on includes 3 from Quénu's own experience. He does not operate at once, preferring to wait until the integument can be made aseptic. He applies moist compresses to soften the epidermis, and makes the toilet of the knee with great care every day, using a weak solution of soda, then ether and alcohol. He insists that aseptic precautions should be even more particular than for a laparotomy, as the synovial membrane is unable to protect itself like the peritoneum, and, besides, it is in an abnormal condition from the traumatism causing the rupture. Gloves are indispensable. Even when the surgeon is not summoned until late in the case the results are good. Silver wire is used for the suture. The vertical sutures should be reinforced by sutures passed across the stumps of the muscle from side to side, as is shown in the illustrations.

29. **Rational Treatment of Congenital Dislocation of the Hip.**—Le Damany's report of his extensive theoretical and clinical study of this subject is accompanied by 32 illustrations or diagrams. He shows the mechanism by which the orthopedist can imitate nature and restore conditions to normal. In the best shaped child, he remarks, the hollow of the acetabulum becomes partially filled up during the last months of intrauterine life, but becomes hollowed out again after birth by the pressure of the head of the femur. In treating dislocation if the femur can be held in the proper position, allowing the weight to be borne on it as in normal conditions, the same result will be attained in time in the atrophied acetabulum. The femur is twisted during intrauterine life, but becomes untwisted after birth by the mechanism which we readily understand. In congenital dislocation we apply the same forces or similar ones as in this mechanism, but in such conditions that the dislocation can not reproduce itself. We thus untwist the femur. In case of simple dislocation the excess of slant in front of the acetabulum will correct itself by the asymmetry of the weight of the body, but in the double form the entire correction has to be made by untwisting the femur. As soon as this correction becomes sufficient, the dislocation is cured once and for all.

30. **External Cervical Esophagotomy for Foreign Bodies.**—Balacesco and Cohn report from Jonnesco's clinic at Bucharest 6 new cases of this operation, and epitomize the literature on the subject. They find 320 cases of the kind on record since 1738. France leads with 63; England and Germany follow with 55; North America with 49; Russia with 43, and Austria with 23. None of the 11 other countries mentioned report over 9. The age ranged from 6 months to 100 years. False teeth, bones and coins were the most frequent objects that had been swallowed. The mortality during the last three years in 55 operations has been only 12.6 per cent. The mortality from bones and stones was respectively 27.8 and 33.3 per cent., while from coins it was only 11.1 per cent. The deaths were almost always due to injuries from the long sojourn of the foreign body in the esophagus. The importance of having artificial teeth made in such a way that they can not be readily swallowed should be impressed on dentists, as these objects are the most dangerous of all foreign bodies in the esophagus according to the statistics, forming a large percentage of the 10 cases of fatal hemorrhage.

Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

Last indexed page 664.

31 (XLIV, No. 2.) Ueber subkutane Sehnenscheiden-Hämatome (of tendon sheaths). H. Kuttner.
32 Lupous Mutilation of Fingers and Toes.—Ueber die lupöse Verkrüppelung und Verstümmelung der Finger und Zehen. G. Mingramm.
33 Cysticercus cellulosæ im Muskel. W. Danielsen.
34 Beiträge zur Statistik der Hasenscharten (harelip). G. Haug.
35 *Remote Results of Ligation of Saphena in Treatment of Varices.—Ueber die Dauerresultate der Saphenaunterbindung bei der Behandlung der Varizen. M. Goerlich.
36 *Fibrous Tumors of Abdominal Wall.—Desmoide der Bauchdecken und ihre Prognose. C. Pfeiffer.
37 Zur operativen Behandlung der Prostata-Hypertrophie. G. E. Münnich.
38 Congenital High Shoulder.—Ueber angeborenen Schulterhochstand. O. Ehrhardt.
39 Ueber das Aneurysma der Art. axillaris infolge von Schulterverrenkung (consecutive to dislocation of shoulder). G. Schmidt.

35. **Remote Results of Ligation of Varicose Saphena.**—During the last twelve years 108 cases of varices have been treated at Tübingen by ligation of the saphena. In 23 the right leg was alone involved, in 29 the left, and in the others, both legs. Fifty-one of the patients were examined at a later period and reports were obtained from 29 others. The results have been satisfactory in 87 per cent. of the cases. The varices had recurred in a number, pronounced in 9, medium in 41, and slight in 19. The circulation through the resected saphena became restored after 42 of the operations. Ligation alone gave only 21 per cent. of successful results, while resection gave 78.9 per cent. The best results were attained when the vein was ligated just below its mouth, and a long stretch of the vein was resected.

36. **Fibroids of Abdominal Walls.**—Pfeiffer writes of the history and present status of our knowledge of the fibrous tumors that develop from the muscles and aponeuroses of the abdominal walls. About 40 have been observed at Tübingen and he has collected 360 from the literature. All but 12.9 per cent. were in women. Three-fourths were in the right side. More than 30 per cent. of the cases developed recurrence after operation, fatal in one-half the cases of recurrence. Spontaneous retrogression has never been observed. Dangerous complications are liable to develop, and internal and local treatment has never proved effectual. Consequently prompt removal is the only choice. As a pedicle may be found, the peritoneum may have to be opened. The primary mortality of these tumors has been 4.5 per cent. (3.05 per cent. when the abdominal cavity was entered and 1.05 per cent. without). The remote results have been permanent cures in 90 per cent. of the female cases and scarcely 50 per cent. in the males.

Berliner klinische Wochenschrift.

Last indexed pages 912 and 992.

40 (XLII, No. 6, February 6.) *Significance of Syphilis of Liver for Diagnosis of Abdominal Tumors.—Die Bedeutung der Lebersyphilis für die Diagnose der Bauchgeschwülste. König.
41 Origin of Immunity to Typhoid.—Entstehung der Typhus-Immunität. Jürgens.
42 Secretion of Gastric Juice in Herbivorous Animals.—Experimentelle Untersuchungen über die Magensaftsekretion bei den Herbivoren. A. Bickel.
43 Fall von Pyodermite végétante. R. Ledermann.
44 Adrenalin Gauze Made by Patented Process.—Ein neues Verfahren der Blutstillung. B. Müller (Hamburg).
45 Ueber Verrenkungen und Verrenkungsbrüche im Talocrural-Gelenk (sprains and fractures). Pels-Leusden.
46 Importance of Late Attempts to Transmit Syphilis to Animals.—Bedeutung der neueren Versuche, Syphilis auf Tiere zu übertragen. E. Hoffmann.
47 Prothesis for Speaking and Swallowing After Removal of Larynx and Esophagus.—Eine Sprech- und Schluckprothese für den Defekt des Kehlkopfs und der Speiseröhre.
48 (No. 7) *Misuse of Tendon Plastics.—Ueber Missbrauch der Sehnen-Transplantation. H. Oppenheim.
49 Zur Kasuistik der Keratomykosis aspergillina. Osterroht.
50 Palpation des Appendix und über die Appendicitis larvata. T. Hausmann.
51 Ueber Osteomyelitis im Säuglingsalter (in infancy). H. Mohr.
52 Etwas über physikalische Herz-Diagnostik (of heart). de la Camp.
53 *Tamponing Nose and Rhinopharynx.—Zur Tamponade der Nase und des Nasenrachenraumes. G. Lennhoff.

40. **Differentiation of Syphilitic from Other Tumors of the Liver.**—König remarks that physicians are gradually awakening to the knowledge that affections of internal organs—even when they appear in the guise of functional disturbances or of febrile inflammatory processes—may be traceable to syphilis. A syphilitic affection in some viscus may develop suddenly in the midst of apparent health, in persons free from the slightest apparent indication or history of syphilis. Three cases are described to illustrate the principal types which syphilis of the liver is liable to assume. The patients had suffered for a longer or shorter time—two years in one case—from attacks of pain in the liver region. There were no actual functional disturbances, but loss of appetite and weight. The localization of the pains led to detection of a tumor in the liver region. In one case—the patient, a woman of 28—the tumor was large and movable, under the right half of the liver with which it was apparently connected, extending backward toward the kidney region. The laparatomy disclosed that the tumor was formed of part of the liver, separated from the rest by a furrow, the surface studded with round grayish-white foci. which extended also over the rest of the liver. As the liver and stomach were firmly adherent, a carcinoma in the stomach was assumed to be the primary focus for the "*multiple metastatic liver carcinosis.*" The abdomen was sutured and mercurial inunctions with potassium iodid were commenced. The patient rapidly recovered and has been healthy to date (since 1901.) No history of syphilis could be ascertained. In the case of a woman of 39 who had borne 4 normal children, a painful tumor developed in the right hypochondrium, without functional liver disturbances, but otherwise simulating cancer of the gall bladder. The laparotomy disclosed an unmistakable [illegible] tumor in the lower edge of the partially cirrhotic

liver. The tumor was as large as an apple, and was excised into sound tissue. Nothing suggesting syphilis could be ascertained in this case either. The third patient was a young man of 22 who denied syphilitic history. The pains were severe and referred to the stomach, radiating thence to the right hypochondrium. Gastric disturbances had been complained of for some years. A flat, hard tumor gradually developed in the right hypochondrium, and the left lobe of the liver was found at the laparotomy studded throughout with numerous gummata. Examination of the eyes later confirmed the assumption of congenital syphilis. A syphilitic tumor of the liver does not seem to have any special characteristics. The pains may develop long before the discovery of a tumor. The attacks of pain are generally associated with stomach disturbances, loss of appetite or even vomiting. There was no effusion into the abdominal cavity, although this has been observed in some instances. The tumor may lie within the liver substance; it is generally hard and uneven and inside the liver percussion area, or it may be a very movable, kidney-shaped tumor, apparently separate from the liver but connected with it by a pedicle. This variety simulates a gall-bladder tumor, movable kidney or "corset" liver. A remarkable feature of one of the cases reported was that antisyphilitic treatment had proved ineffectual before the laparotomy, but afterward it displayed its usual efficiency. Even when the abdomen has been opened carcinosis or tuberculosis may be suggested by the aspect of the lesions. An exploratory excision is a great help in dubious cases. When syphilis has been established the question whether or not to excise the lesion must be decided by the individual circumstances.

48. Abuse of Plastic Operations on Tendons.—Oppenheim warns surgeons emphatically against attempting any tendon operation unless sure that the case is one in which the affection requiring treatment has run its course and is not a progressive one. He has witnessed three typical examples of the harm that can be done by such procedures in case of progressive muscular atrophy, chronic anterior poliomyelitis or a spinal tumor. The course of these progressive affections was hastened and much harm was done by tendon transplantation undertaken to relieve conditions at some stage of the affection. The operation itself, the consecutive immobilization and other measures are serious matters for a person with nerves or muscles or both in abnormal condition.

53. Tampon for Nose and Nasopharynx.—Lennhof uses a long narrow strip of gauze, folded back and forth on itself, with a stout silk thread passed through it and knotted at one end. This end of the strip, with the knot, is introduced through the nose into the nasopharynx. An assistant holds the other end of the string, and the strip of gauze, thus under control, is readily packed into the nose. Pulling on the string tightens the folds of the strip into a solid tampon. The advantages are obvious. Not the least is the fact that the tampon is removed gradually in the form of a strip.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 993.

54 (XXXII, No. 8, February 25.) Fenestrated Sound for Goiter Operations.—Die gefensterte Kropfsonde. F. Brunner.
55 (No. 9.) *Modifikation der Bassini'schen Radikal Operation der Leistenbruche (hernia). E. A. Polya (Budapest).

55. Modification of Bassini's Operation for Inguinal Hernia.—In von Herczel's surgical service at Budapest a modified Bassini operation is preferred to the original technic as affording better protection against recurrence and against nutritional disturbances in the testicle. Polya illustrates the essential features of the modified technic, showing how the spermatic cord is first drawn upward as it emerges from the muscles, traction being exerted by a spur from the aponeurosis of the oblique. The cord is thus drawn first inward, then up, and then around on the other side of the incision, where it passes along a new canal formed in the aponeurosis, which folds up close around the cord. The Bassini suture is reinforced by suturing the upper flap of the aponeurosis to Poupart's ligament.

Centralblatt f. Gynäkologie, Leipsic.

Last indexed page 993.

56 (XXIX, No. 8, February 25.) Paralyse des nicht schwangeren Uterus (of non-gravid uterus). R. Kossmann.
57 *Patient's Consent to an Operation.—"Ueber die Einwilligung der Kranken zu Operationen." A. Dührssen.
58 "Der suboccipito-frontale Kopfumfang" (circumference of head). G. Burckhard.
59 Hebelhalter für Irrigatoren (adjustable lever holder). C. H. Stratz.
60 (No. 9.) Proliferation of Lutein Cells in Imperforate Follicles.—Die Luteinzellenwucherung in atretischen Follikeln eine physiologische Erscheinung wahrend der Gravidität. L. Seitz.
61 *Ueber Uterus-Ruptur. A. v. Valenta.

57. Patient's Consent to an Operation.—Dührssen comments on a damage suit brought against him in 1902 which is still hanging in the courts. He advocates the use of a printed form, dated and signed by the patient, expressing her agreement with the measures deemed appropriate for the cure of her affection in the clinic mentioned by name.

61. Rupture of the Uterus.—Valenta has had occasion to observe 14 cases of complete rupture of the uterus among 1,350 parturients. He gives the particulars of 2 cases in which the patients were saved by prompt operating. Eight of the women were operated on and 3 recovered, that is, 37.5 per cent., while all of the patients unoperated on died. The sooner after the rupture the operation is undertaken the better the outcome. The results would have been better in his cases if he could have gained the patients' consent to an operation earlier. Hours were wasted on this account in some instances, and 3 women succumbed without allowing any operation to be performed. He advocates supravaginal amputation and extraperitoneal care of the stump as the safest and surest method of treating complete rupture of the uterus. He tabulates the 14 cases with 2 additional, incomplete ruptures.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

62 (XXXI, No. 5, January 31.) *Treatment of Hemorrhage from the Lungs.—Die Behandlung der Lungenblutungen. H. Hochhaus.
63 *Zur Prognose des Diabetes. F. Hirschfield.
64 Thiosinamin bei Narbenkontrakturen (in treatment of cicatrical contracture). Mellin.
65 Unterbindung der Arteria hypogastrica dextra wegen Aneurysma der Arteria glutea inferior (ligation, one case). C. Israel.
66 *Rotary Punch for Epilation.—Eine neue sichere Epilations Methode: das Stanzen. Kromayer.
67 Immunization of Cattle Against Tuberculosis and Trials of Turtle Serum.—Ueber Immunisierung von Rindern gegen Tuberculose (Perlsucht) und über Tuberculose Serumversuche. Libbertz and Ruppel. Reply. F. F. Friedmann.
68 Pleuritis with Muscular Rheumatism.—Brustfellentzundung und Muskelrheumatismus. A. Kirchner.
69 *New Year Address.—Eine Neujahrsbetrachtung. V. F. Kraus.
70 Educational Influence of Medical Inspection of Schools.—Schularztliche Padagogik. Axmann.
71 (No. 6.) Ueber Ileus (clinical lecture). V. Czerny.
72 *Biologic Differentiation of Blood of Allied Species.—Zur Differenzierung des Blutes (Eiweis) biologisch verwandter Tierspecies. H. J. Hamburger.
73 Biologic Tests of Material from Mummies.—Bestimmung der Herkunft von Mumienmaterial mit Hilfe spezifischer Sera. Uhlenhuth (Greifswald).
74 *Functional Test of Heart.—Eine Funktionsprufung des kranken Herzens. M. Herz.
75 *Metabolism in Cancer Subjects.—Stoffwechseluntersuchungen bei Carcinomatösen. C. Lewin.
76 *Behandlung des akuter [illegible] A. Henle.
77 Epithelial Changes in [illegible] Affections.—Zur Frage der epith[illegible] den Magendarmkrankheiten des Sauglings. G. Tugendreich.
78 *Prognose des Trismus, Tetanus neonatorum und infantium, mit Berücksichtigung der Serotherapie. H. Flesch. (Commenced in No. 5.)

62. Treatment of Hemoptysis.—Besides the usual rest for both body and mind, no food except cool drinks or soups, and small scraps of ice during the first few hours, with an ice-bag to the lung or a compressing bandage, Hochhaus advocates subcutaneous injection of gelatin. His experience has shown it to be very valuable. He warns against morphin or anything of the kind, unless to relieve a distressing desire to cough. Another valuable adjuvant is constriction of the limbs. The constriction is applied loosely enough to permit the influx of arterial blood but not the efflux of the venous blood. This holds the blood in the limbs and thus reduces the blood pressure in the lungs. Operative treatment should be considered as a last resource when all other measures fail.

63. Prognosis of Diabetes.—Hirschfeld comments on the comparative rarity of tuberculosis in diabetics. He has encoun-

...section of Skull and Dura on Func-... reports experimental research on 25 ... and dura were resected, sometimes ...ards of the entire surface of the hemi-... the animals seemed to be permanently in-...ration. Solid cicatricial tissue formed over ...ecame adherent to the cortex, without any ...of sensory or motor disturbance. Jacksonian ...ped only in the animals predisposed by some ...erited lesion. There was no hernia of brain sub-...he intracranial pressure wa... bnormally high.

Münchener medicinische ... schrift.

(No. 7, February 14.) ...tic Action of Photo-...namic Substances.—Ueber ...olytische Wirkung der photodynamischen Stoffe. ...roff and H. Sachs.
...g von Serumproben (automatischer Mischer zu... (automatic mixer for se...). M. Pfaundler (Graz).
Zur Frage der akuten ...tion (of heart). H. Starck.
Ueber Osteogenesis ... M. Hohlfeld.
2 Fälle von "Sp... Skorbut." H. Löhrisch.
*Die Pylorus-St... Säuglinge (of infants). J. Schmidt.
*Laryngeal T...s in Pregnant Women.—Weiterer Beitrag zur ...schwindsucht der Schwangeren und zur Frage des ...nstlichen Aborts. Löhnberg.
7 Ueber Star-Operationen und Star-Reifung (cataract ripening and operations). C. Bahr.
8 Obstetric Bag.—Vollständiges geburtshilfliches Besteck. G. Schmauch (Chicago).
99 Twofold Amyloid Reactions.—Zweierlei Amyloid-Reaktionen. E. Neumann and C. Davidsohn.
00 *Treatment of Acute Suppurations with Congestive Hyperemia.—Behandlung akuter Eiterungen mit Stauungshyperämie. A. Bier (Bonn). (Commenced in No. 6.)

92. **Acute Dilatation of Heart.**—Starck emphasizes the im-...rtance of the psychic factor in the acute dilatation of the ...art in excessive athletic exercise. He describes a typical case ...n which the heart became extraordinarily dilated during the ...ourse of a *fencing match*, the pulse rising from 70 and 96 to 160, the heart extending *from* the middle of the sternum to the anterior axillary line on the left and from the second interspace to the sixth rib. Eight hours later the heart had returned nearly to normal size.

95. **Stenosis of the Pylorus in Infants.**—Schmidt has operated on 2 infants on account of congenital stenosis of the pylorus. Both of the little patients were in such advanced inanition that recuperation proved to be impossible, but the findings corroborate the necessity for and value of prompt operation in such cases. Analysis of the literature further shows that congenital stenosis of the pylorus is not so rare in infants as is generally assumed. The severest cases are the only ones recognized. The majority belong to the genuine hypertrophic variety, on an anatomic basis, curable only by surgical intervention. The rare cases of pure pyloric spasm are amenable to internal therapy, as also the relative organic stenosis with compensatory hypertrophy of the stomach. These two varieties may be associated or there may be transitional forms.

96. **Induced Abortion in Treatment of Laryngeal Tuberculosis.**—A ii-para in the third month of pregnancy presented signs of a tuberculous affection of one lung and of the larynx. Both lesions were in a comparatively stationary stage. There was no fever. Löhnberg was consulted in regard to interruption of the pregnancy and advised against it, but the patient, her husband and the attending physician insisted on it. Only transient improvement was noted after the abortion. Fever then developed and the case terminated fatally in three months.

100. **Treatment of Acute Suppurations with Congestion Hyperemia.**—The first part of this article was reviewed in these columns March 18, page 914. Bier here relates examples in detail to show the benefit that follows this method of treating acute suppurations. He says that the directors of hospitals and clinicians generally can apply it [illegible]ll confidence. They can commence with the milder cases at first. In incipient acute suppurative inflammations of every kind he claims that the "hyperemia by damming" works actual wonders. The subacute inflammations subside regularly and rapidly. It is such a reliable method for suppressing acute infectious foci—incipient suppuration on the limbs or head—that it can be counted on to modify fresh, acute infections and to cure them without any or with very insignificant surgical intervention. Otherwise these processes lead to severe and tedious affections, frequently requiring extensive and mutilating operations. An early diagnosis and application of the congestion hyperemia will abort them in their incipiency. This method will be found particularly valuable for surgical wound infections and for postmortem infection, as the subjects are able to diagnose these lesions at once. Congestion hyperemia is also indicated for acute and subacute inflammation and suppuration in joints. Failures in its application are due to incorrect technic. The congestion must be considerable, but not intense enough to hurt the patient. The constriction should be tight enough to arrest the pain, never to increase it. Intelligent patients soon learn the proper degree of constriction. The pus must be allowed free outlet, but with the least possible mutilation. Congestion hyperemia does not disturb, but promotes the nutritional processes in the tissues. The retarding of the circulation renders harmless the bacteria and their toxins in the part and prevents necrosis by the superabundant nourishment it supplies to the tissues. Revulsion answers the same purpose—inducing hyperemia—but it does this at the expense of injury to the tissues. Congestion hyperemia does all that is necessary, and in the gentlest way. The application of superheated air is in the same therapeutic line, but it induces too intense active hyperemia. He was the first to apply and to advocate superheated air in therapeutics, but has now entirely abandoned it. Congestion hyperemia, on the other hand, resembles the natural defensive processes. The technic of applying a constricting bandage is so simple and easy that physicians have paid scant heed to his method since he first introduced it into therapeutics ten years ago. The technic for the head and limbs is all that is perfected to date. Various apparatus for the trunk have been tentatively applied. A large glass cupping apparatus is now doing good service in suppurative mastitis. It aspirates the pus through comparatively small openings while inducing congestion hyperemia. Similar cupping apparatus have been found useful for furuncles, the apparatus quite large and the suction not very strong.

Therapeutische Monatshefte, Berlin. Liebrich's, Berlin.

Last indexed page 510.

101 (XVIII. No. 6.) Experiments on Diuresis.—Versuch über Diurese, insbes. über die Wirkung des Theocin-natrium aceticum. J. Meinertz.
102 Zur Kenntnis der Strophanthus-Wirkung. G. Günther.
103 Cinnamic Acid Treatment of Pulmonary Phthisis in Country Office Practice.—Erfolge der Zimtsäurebehandlung der Lungenschwindsucht in der Sprechstunde des Landarztes. R. Blum (Haltingen).
104 Nasal Treatment of Heart Affections.—Nasale Therapie von Herzaffektionen. Cholewa (Nauheim).
106 Action of Driburg Mineral Waters on Urinary Affections.—Wirkungen der Caspar-Heinrich-Quelle zu Driburg bei Krankheiten der Harnorgane. L. Lünnemann.
107 (No. 7.) Zur Statistik der operativen Behandlung des Mamma-Karzinoms. A. Tietze (Breslau).
108 Zur Wirkungsweise des Cancroins. W. Perlmann.
109 *Prevention of Recurrences After Carcinoma Operations.—Verhütung von Rezidiven nach Karzinom-Operationen. H. Mohr.
110 Die Energeto-Pathologie O. Rosenbachs. F. C. R. Eschle.
111 Gangrän bei Scharlach (in scarlet fever). Netz.
112 Beitrag zur Eisentherapie (iron). Gollner.
113 Praktische Erfahrungen über die spezifische Wirkung des "Lactagol." J. A. Goldmann.
114 Statistics of Diphtheria in Prussia, 1904.—Diphtherie. Liebreich.
115 (No. 8.) Nephroptose und Enteroptose. Aufrecht.
116 Active Principle of Male Fern.—Die wirksamen Bestandteile des Extractum Filicis maris und ihre therapeutische Anwendung. A. Jaquet (Basle).
117 Ueber Diphtherie Statistik. H. J. Bing and V. Ellermann (Copenhagen).
118 Die Behandlung der trockenen und verstopften Nase (dry and stopped-up nose). Volland.
119 Elimination of Boric Acid in Sweat.—Ueber Ausscheidung der Borsäure beim Menschen durch den Schweiss. O. Liebreich.
120 Zur Behandlung Herz-Kranker (patients with heart affections). A. Hecht.
121 *Over-stimulation from Sea Air and Its Avoidance.—Die klimatische Ueberreizung an der See und ihre Vermeidung. Ide (Amrum).

109. **Prevention of Recurrence After Removal of Cancer.**—Mohr discusses the prognosis after operative treatment of malignant disease and expresses his belief that the results observed do not justify the pessimism that prevails in some

quarters. The after-treatment is a more promising field than any further perfecting of surgical technic. An effectual local or general measure to apply after removal of the neoplasm would aid materially in increasing the proportion of permanent recoveries. This is the most urgent problem in the cancer question at present.

121. **Overstimulation from Sea Climate.**—Ide has attempted the task of systematizing the indications that develop during a trip to the seashore. Invalids are overexhilarated by the climatic factors, and, to derive the greatest benefit, individual indications must be studied. There may be cyanosis, hemorrhoidal bleeding, excessive menstruation and a tendency to hemoptysis in the predisposed. The wind and the unusual exercise are the principal causes of this overstimulation. The wind acts like a cold douche. Rest and warmth in bed afterward are an important aid in the reaction. The bed can be by an open window, but rest in bed, even several times a day, will be found an invaluable adjuvant and modifier of the climatic influences.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed page 168.

122 (LIII, No. 2.) The Reactions of Pregnancy in the Fetal Organs and Their Puerperal Involution.—Schwangerschaftsreaktionen der fötalen Organe und ihre puerperale Involution. J. Halban.
123 Migration of Human Ovum.—Zur Frage der Ueberwanderung des menschlichen Eies. C. Hasse.
124 Statistics of Births at Berlin Gynecologic Clinic, 1888-1902. Geburten der k. Universitäts-Frauenklinik in Berlin Während 15 Jahren. R. Olshausen and *Ploeger.*
125 Vestiges of Wolffian-Gärtner's Duct in Paravaginal Connective Tissue.—Reste des W.-G. Ganges im paravag. Bindegewebe. T. Leisewitz.
126 Zur path. Anatomie der Puerperal-Eklampsie. H. Petersen.
127 Fibrinorrhea plastica bei Myoma cavernosum und Endometritis chronica cystica. J. Wallart.
128 Zur Frage der Placenta-Adherenz. A. Bauereisen (*Erlangen*).
129 Various Forms of Involution of Ovarian Follicles and Their *Relation to Changes in the Ovarian Vessels.—Ueber die* verschiedenen Formen der Rückbildungsprodukte der Eierstocksfollikel und ihre Beziehungen zu Gefässveränderungen des Ovariums, nebst Bemerkungen über Lutein-Cellen-Wucherungen in den Eierstöcken Schwangerer. A. Böshagen.
130 (No. 3.) *Studien zur Physiologie des Uterus. K. Franz.
131 *Zur Klinik und zur konservativen Behandlung der Myome des Uterus. M. Henkel.
132 Der Antitoxin-übergang von der Mutter auf das Kind (natural transmission). O. Polano.
133 Ueber Uterus-Rupturen in Narben von früheren Geburten (in scars from previous births). Three cases. A. Labhardt.
134 Zur Serumtherapie der Streptokokken-Infektionen, speziell des Puerperal-Fiebers. G. Burckhard.
135 Emphysema subcutaneum während des Gebäraktes entstanden (during birth act). H. T. Herman.
136 *Ueber die Blasenmole (vesicular mole). Gottschalk.
137 Pregnancy, Childhood and Puerperium According to the Bible and the Talmud.—Schwangerschaft, Geburt und Wochenbett nach Bibel und Talmud.—E. Preuss (Berlin).

130. **Physiology of Uterus.**—This extensive work is based on study of the isolated uteri of rabbits and of the extirpated uteri in 11 clinical cases. Both the human and the rabbit uteri responded to stimuli in essentially the same way. Heat stimulation elicited particularly marked response. When the uterus of the rabbit was drawn out but left still connected, subcutaneous injection of chloral arrested the "spontaneous" contractions; ergotin started them and increased the tendency rhythmic reaction to stimuli, while atropin had little if any effect.

131. **Treatment of Myomata of Uterus.**—Henkel discusses the subject of conservative treatment of myomata. The question is how to relieve the patient of her disturbances without danger and without *harm otherwise.* In malignant disease the aim should be to remove every morbid particle, but in case of a benign growth all that is necessary is to remove the neoplasm itself, and to save everything else. He warns that any and every deviation from this principle is sure to avenge itself sooner or later.

136. **Vesicular Mole.**—Gottschalk gives illustrations of the pathologic anatomy of the [illegible] vesicular mole to sustain his view that the formation is the result of primary disturbances in the circulation through the [illegible] al villi.

[illegible] Palermo and Naples.

[illegible]ed page 914.

138 (XX[illegible]) [illegible]ed before *Endothelial Elements in Normal [illegible] i leucociti mononucleati, con le forme di passaggio, e con i cosidetti linfociti del sangue. V. Patella.
139 Behavior of Cartilage in Wounds.—Sul comportamento delle cartilagini nelle ferite. G. Fasoli.
140 Changes in Structure of Organs from Injection of Heterogeneous Serums.—Sulle fine alterazioni di struttura degli organi per iniezioni di siero di sangue eterogeneo. G. R. Saeli.
141 (No. 3.) The Saccharifying Diastase of Tubercle Bacillus as a *New Link to Connect It with the Streptothrix.*—La diastasi saccarificante del bacillo della tuberculosi como nuovo carattere di parentela colla *streptotrix.* C. Fermi.
142 Primary Trephining in Complicated Fracture of Vertex.—La trapanazione primitiva nelle fratture complicate della volta cranica. A. Cernezzi.
143 Mode of Action and Tests of Strength of Serums.—Maniera di azione e controllo di attivita di alcuni sieri antimicrobici. A. Paladino-Blandini. (Commenced in No. 2.)
144 (No. 4.) Cancer-Cirrhosis of the Liver.—Sul cancro-cirrosi del fegato. E. Rollino.
145 Two Cases of Tardy Hereditary Tabes with Congenital Syphilis.—Tabe ereditaria tardiva per sifilide congenita. M. Bertolotti.
146 (No. 5.) L'Orchipina, preparato di testicolo fresco in veicolo oleoso (preparation of beef's testicles in oily vehicle). M. Sciallero.
147 Esame siero-diagnostico di 100 malati presentanti il quadro clinico della infezione tifoidea (study of serodiagnosis). D. Falcioni.
148 Nefrocapsulectomia alla Edebohls per nefrite cronica a forma prevalentemente interstiziale (one case, slight improvement). E. Arcoleo.
149 Sulla patogenesi della dissociazione della sensibilita di origine centrale. U. Benenati. (Concluded.)
150 Echinococco latente del fegato. Ascesso occulto da echinococco (latent liver abscess). C. Bernabei. (Concluded.)

138. **Endothelial Elements in Normal Blood.**—Patella presents numerous arguments to sustain his assumption *that in* normal blood, besides the red corpuscles, the polymorphous leucocytes and the true lymphocytes, there are no other leucocytes except such as are of endothelial origin, due to a process of desquamation. All the hyaline, non-granulated forms observed are of endothelial origin. In case of endarteritis or of endocarditis, acute or chronic, the hyaline elements in the blood have the value of a pathognomonic sign. The mononuclears observed are the exponent of the changes in the cardiovascular endothelium.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to *those sending* them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our *readers.*

The American Year-Book of Medicine and Surgery for 1905. A Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery, Drawn from Journals, Monographs and Text-books of the Leading American and Foreign Authors and Investigators. Arranged, with *Critical* Editorial Comments, by Eminent American Specialists Under the Editorial Charge of George M. Gould, A.M., M.D. In Two Volumes. Volume I, Including General Medicine; Volume II, General Surgery. Fully Illustrated. Cloth. Price $3.00 net per volume. Philadelphia and London: W. B. Saunders & Co. 1905.

The Urine and Feces in Diagnosis. By Otto Hensel, Ph.G., M.D., Bacteriologist, German Hospital, New York, and Richard Weil, A.M., M.D., Pathologist, German Hospital, New York. In Collaboration with Smith Ely Jelliffe, M.D., Ph.D., Instructor in Pharmacology and Therapeutics, Columbia University; Visiting Neurologist. City Hospital, New York. Illustrated with 116 Engravings and 10 Colored Plates. Cloth. Pp. 334. Price, $2.75 net. Philadelphia and New York: Lea Bros. & Co. 1905.

The Vermiform Appendix and Its Diseases. By Howard A. Kelly, A.B., M.D., Professor of Gynecology in the Johns Hopkins Hospital, Baltimore, and E. Hurdon, M.D., Assistant in Gynecology in the Johns Hopkins University, Baltimore. With 399 Original Illustrations, Some in Colors, and 3 Lithographic Plates. Cloth. Pp. 827. Price, $10.00 net. Philadelphia and London: W. B. Saunders & Co. 1905.

Essentials of the Practice of Medicine. Prepared Especially for Students of Medicine. By William R. Williams, M.D., formerly Instructor in Medicine and Lecturer in Hygiene, Cornell University. Double Number. Cloth. Pp. 461. Price, $1.75. Philadelphia and London: W. B. Saunders & Co. 1905.

The Intestinal Catarrhs, Being a Clinical Study of Colitis, Appendicitis and Their Allies: with a Special New Section on Sprue. By Edward Blake, M.D., Member of the Royal College of Physicians. Second Edition. Cloth. Pp. 356. Price, $2.00 net. Chicago: W. T. Keener & Co.

The Other Side of the Lantern. By Sir Frederick Treves, Bart., K.C.V.O., C.B., LL.D., Sergeant-Surgeon in Ordinary to H. M. the King. With 4[illegible] Illustrations from Photographs, by the Author. Cloth. Price, $5.00 net. Chicago: W. T. Keener & Co. 1905.

American Alkalometry. Vol. IV. A Digest of Clinic Teachings, 1902 and 1903. Cloth. Pp. 734. Price, $2.00, delivery prepaid. W. C. Abbott and W. F. Waugh, Editors, Chicago. Chicago: [illegible]